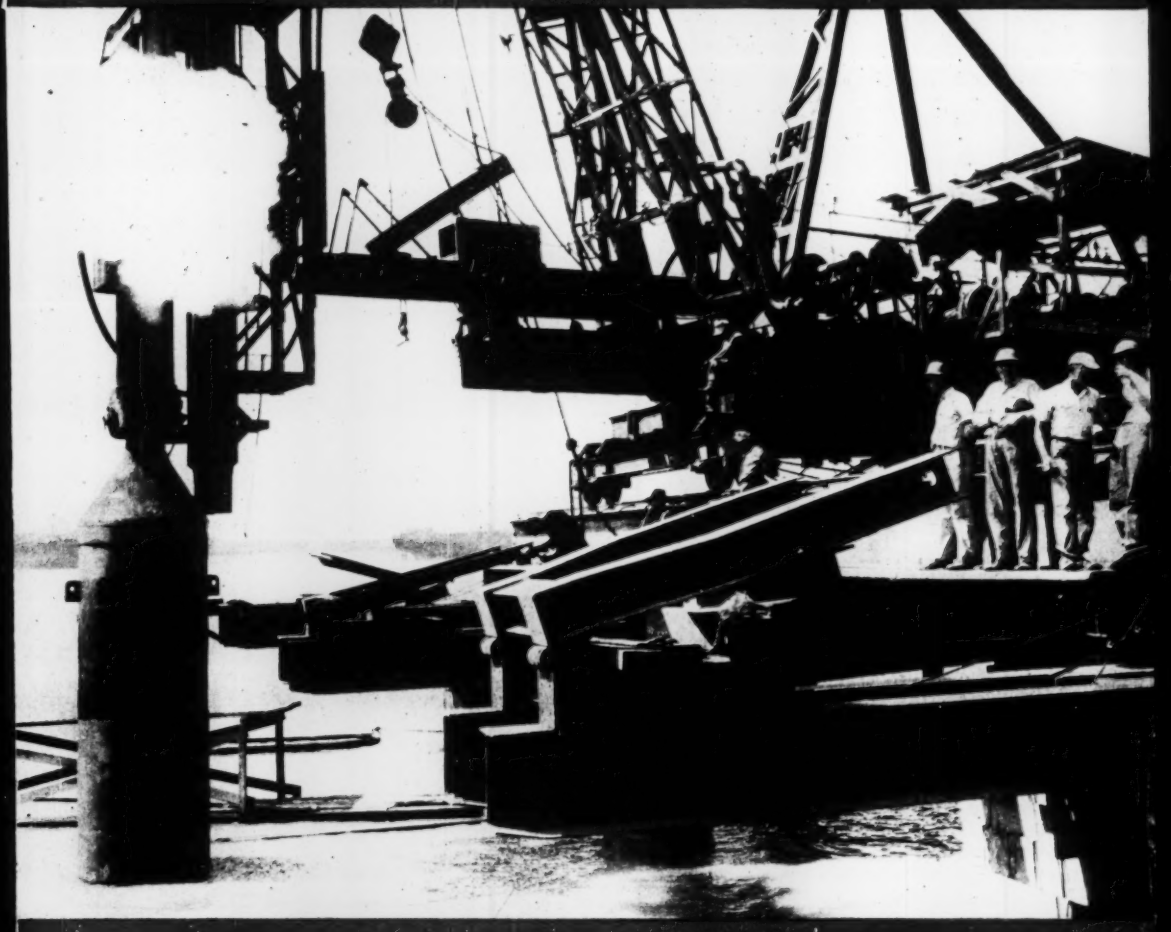
ENGINEERING NEWS-RECORD

MAY 12, 1949



Steel cylinders are driven deep into Mississippi River mud to support eight piers

PROGRESS REPORT: MACHINE-GROUTED JOINTS

SQUIRREL HILL TUNNEL SPEED DEPENDS ON ROCK

A McGRAW-HILL PUBLICATION

BYERS WROUGHT IRON PIPE
knocks corrosion right out of the Park!

When an underground water line failed at Wrigley Field, home of the Chicago Cubs, the engineers sent in a pinch-hitter with a 1.000 batting average against corrosion. The new 4-inch line is Byers Wrought Iron.

Wrought iron is a veteran in underground services, and has hung up some remarkable records for long, trouble-free life. In Pennsylvania, a 50-inch wrought iron main is still on the job after over 60 years of use; operating pressure is 135 lbs. and only one leak has ever been reported. In California, a 44-inch wrought iron line in service for 54 years was found in such good condition it was placed in stock for replacements and extensions. Incidentally, the pipe used to replace this line was also wrought iron, which had served between 30 and 40 years before going on its new job. Almost every locality can provide some impressive example of wrought iron's durability.

There's a very definite reason why wrought iron serves longer. Ordinary materials fail because corrosion causes pitting, which soon perforates the wall. Wrought iron's high-purity iron body has tiny fibers of glass-like silicate slag threaded through it. These fibers halt and disperse corrosive attack, discouraging pitting. The fibers also help to anchor the initial protective scale, which shields the underlying metal.

If you are installing or replacing any underground services—steam, water, gas or oil—you'll find it profitable to read our bulletin WROUGHT IRON FOR UNDERGROUND SERVICES. It discusses the factors affecting soil corrosion, and gives engineering experience in dozens of varied installations. May we send you a complimentary copy?

A. M. Byers Co., Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, Seattle, San Francisco. Export Division: New York, N. Y.

CORROSION COSTS YOU MORE THAN WROUGHT IRON

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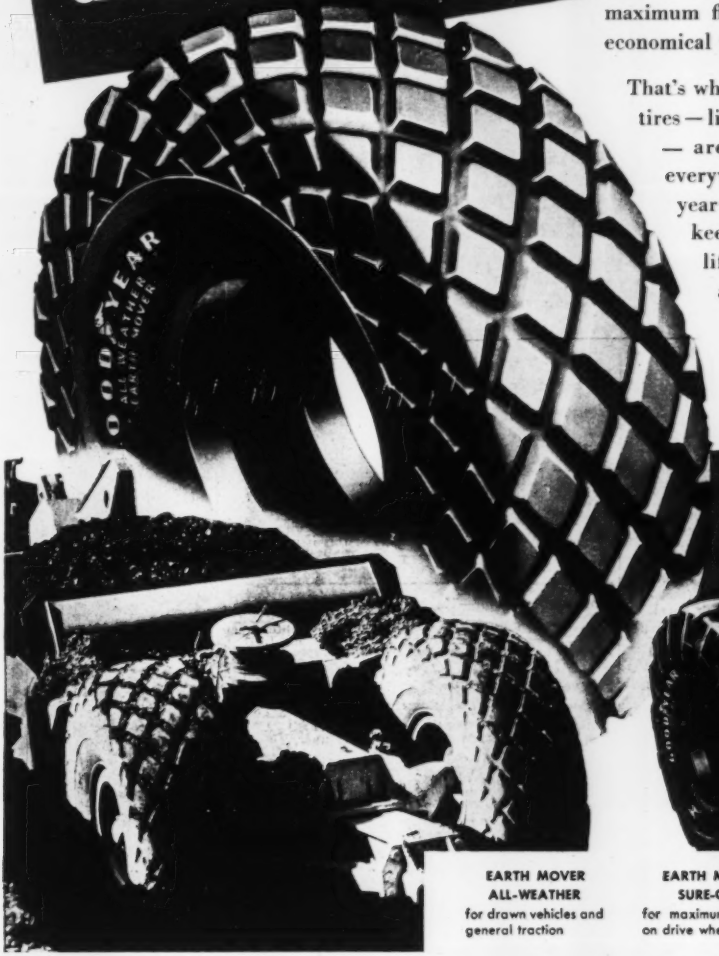
for BIG loads at LOW cost!

Here's the work tire that's unequaled for rolling yardage — on schedule at rock-bottom cost. Notice the large diamond pattern — it distributes the load evenly, carries maximum loads over all kinds of terrain. This Goodyear-designed tread reduces cutting and snagging — gives maximum flotation in soft going, and economical wear on firm-surface roads.

That's why Earth Mover All-Weather tires — like *all* Goodyear work tires — are first choice with users everywhere. They stay first choice year after year, because they keep delivering low-cost, long-life performance. Remember, always BUY and SPECIFY Goodyear—it pays!



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for drawn vehicles and general traction

EARTH MOVER SURE-GRIP
for maximum traction on drive wheels

HARD ROCK LUG
for super-stamina in all rock work

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MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND

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ENGINEERING NEWS-RECORD

VOLUME 142 MAY 12, 1949 NO. 19

WALDO G. BOWMAN
Editor

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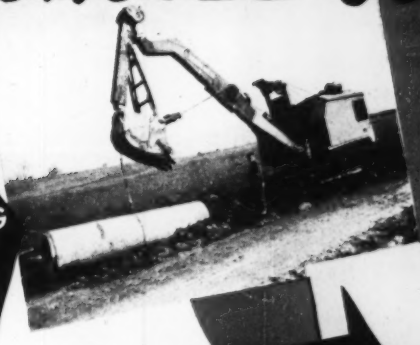
PULLSHOVEL JOBS AHEAD—

DON'T BUY A ONE-PURPOSE MACHINE!



HANDLING PIPE

BASEMENT EXCAVATION

SEWER WORK

YOUR Northwest Pullshovel is one of the most versatile tools in the "deck." Sewer trench and waterline trench—wide, narrow, deep, shallow—are handled fast and easily. Northwest gives you plenty of boom for deep digging or side casting.

On basement work your Northwest stays out of the hole—a time-saving feature if the "going" is wet. Water entry line and electric line trench can be handled practically in the same cut. Your Pullshovel has proved successful even on road work and handles the parallel ditch all at the same time.

Your shovel equipment on work like this is in the heart of the job and you can't afford anything but the best for the heart of the job. Don't buy a one-purpose machine. Plan now to have a proved Northwest Pullshovel for the *Key Spots* where the profit begins. Remember it is convertible to a standard shovel, crane or dragline. Ask for details.

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135 South LaSalle St.
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MAKES YOUR KEY MACHINE A REAL ROCK SHOVEL

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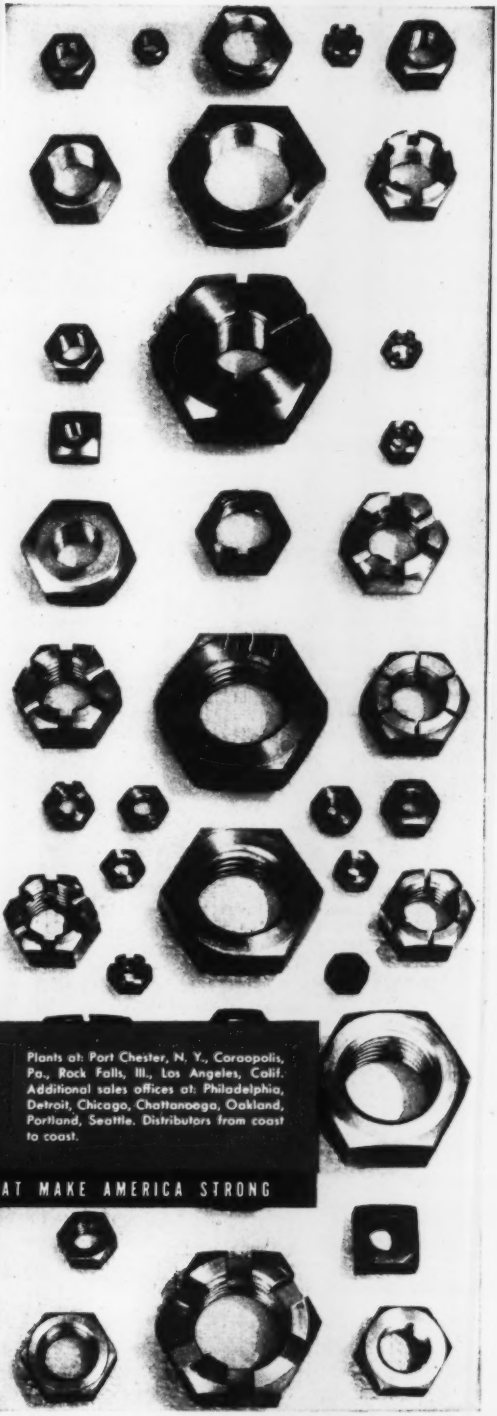
Maximum holding power per dollar investment—helps you get *True Fastener Economy*. The *dependability* of RB&W Nuts is the product of more than a century of continuous research and progressive development in nut manufacturing . . . backed by the skill of four generations of RB&W men and women.



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Plants at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices at: Philadelphia, Detroit, Chicago, Chattanooga, Oakland, Portland, Seattle. Distributors from coast to coast.

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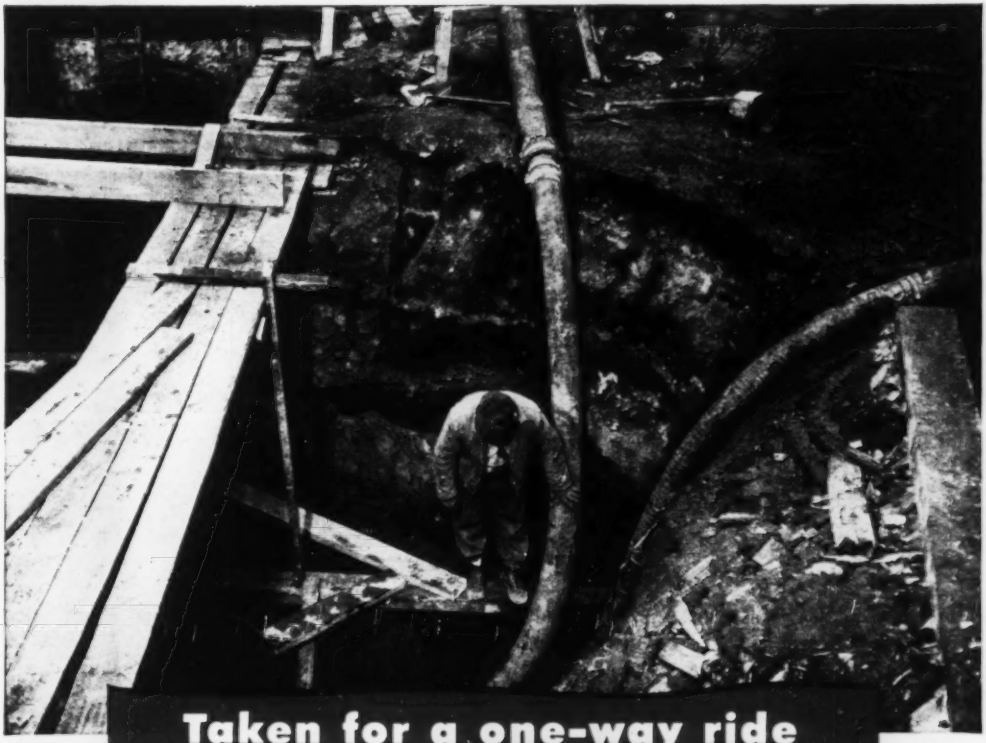

Taken for a one-way ride

Tough, sturdy Hewitt Water Suction Hose removes waste water quickly, surely

The hose pictured above is taking an "undesirable" for a one-way ride.

It's being used to pump out seepage water that collected in the excavation. This type of job calls for a dependable, heavy-duty water suction hose. And flexible, rugged Monarch Water Suction Hose is just that kind!

It's built by Hewitt Rubber to "take it" . . . even under constant exposure to wear and abrasion. You can count on it to handle high vacuums without ply separation. You can be sure that water will flow through it quickly and positively with practically no frictional resistance. And you can rely on the tough cover to resist abrasion.

For your difficult drainage operations, insist on Hewitt Monarch Water Suction Hose. You'll find it's the right hose for better, more economical service. For further information call the Hewitt distributor listed in the yellow pages of your phone directory. Or write Hewitt Rubber Division, 240 Kensington Avenue, Buffalo 5, New York.

HEWITT

Water Suction Hose

OTHER HEWITT PRODUCTS TO MEET YOUR EVERY NEED . . .

Air Drill Hose
Air Hose
Ajax Conveyor Belt
Cement Placement Hose
Concrete Placing Hose
Dredge Sleeves
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Water Hose
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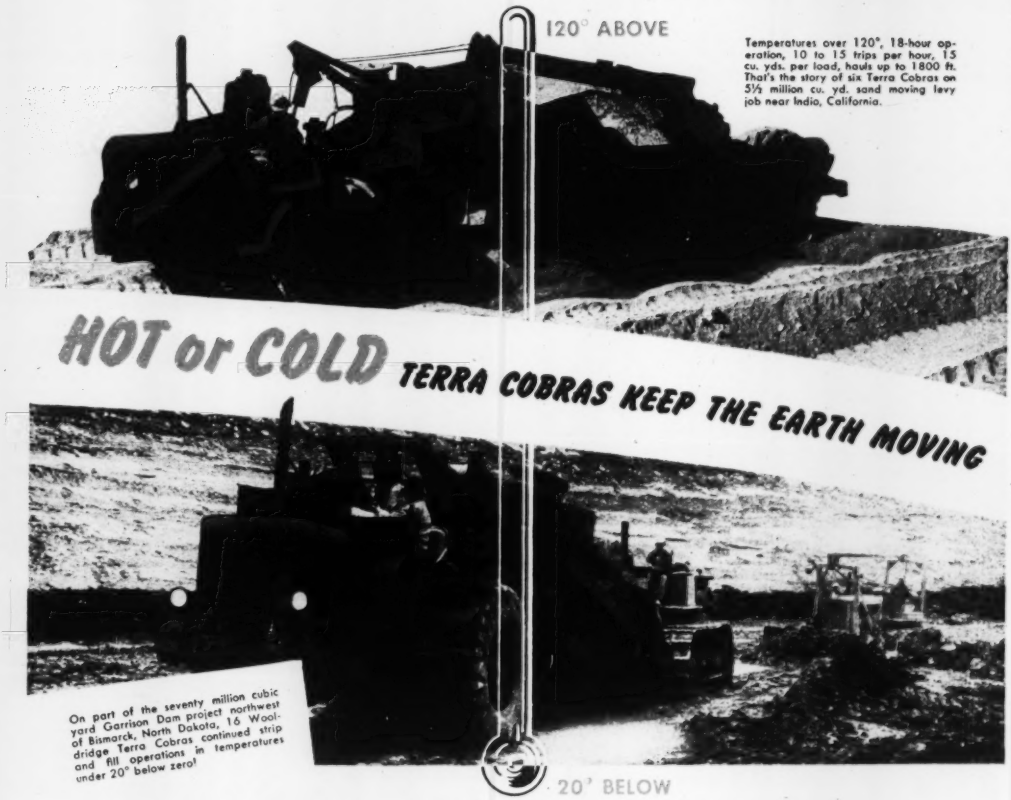
HEWITT RUBBER DIVISION **HEWITT-ROBINS INCORPORATED**



Temperatures over 120°, 18-hour operation, 10 to 15 trips per hour, 15 cu. yds. per load, hauls up to 1800 ft. That's the story of six Terra Cobras on 3½ million cu. yd. sand moving levy job near India, California.

On part of the seventy million cubic yard Garrison Dam project northwest of Bismarck, North Dakota, 16 Wooldridge Terra Cobras continued strip and fill operations in temperatures under 20° below zero!

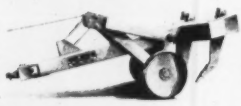
HOT or COLD TERRA COBRAS KEEP THE EARTH MOVING

In mud or dry sand . . . in soft loam or hardpan . . . hundreds of powerful 200 hp Terra Cobras are daily proving their ability to keep the earth moving in every season. They'll maneuver in tight places, work safely close up to a shoulder, load fast without stopping and barrel along through the haul at top speed over rough ground or highway. They'll spread smoothly or dump in response to feather-touch controls . . . then whip back for another load. Engineered for continuous service, Terra Cobras have the built-in ruggedness and dependability required for year-around clock-around operation. On long or short hauls, more yardage per hour PLUS more hours on the job add up to the profits every contractor wants. For complete details on the Terra Cobra, contact your nearest Wooldridge Distributor. Prompt delivery is assured by placing your orders early.

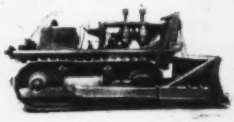
WOOLDRIDGE MANUFACTURING CO.
Sunnyvale, California, U.S.A.

EARTH-MOVING EQUIPMENT
WOOLDRIDGE

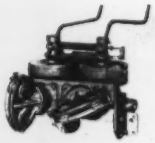
SCRAPERS: Boiling Bowl and Terra Clipper Scrapers from 7.5 to 27.5 cu. yd. heaped capacities.



RIPPERS: Three models: for extra heavy, standard, or light duty.



BULLDOZERS and Trailbuilders for all standard makes of tractors.



POWER CONTROL UNITS: Two-drum winches for use with all standard tractors.

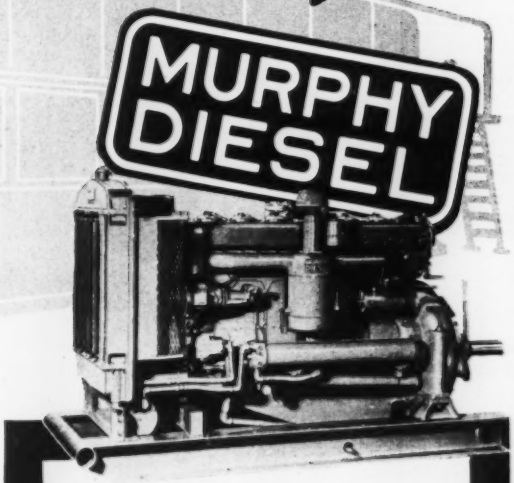
PROVED AND APPROVED FOR EVERY TYPE OF EARTH-MOVING JOB

Now you can have

BIG DIESEL

design advantages...

in a compact package



COMPARING a big, expensive slow speed diesel with a relatively small low priced diesel may sound like a comparison between a highway bus and a taxicab. But Murphy Diesel—and only Murphy—has succeeded in building into its line of compact engines many of the most important design features that are responsible for the big diesel's reputation for dependability, long life and operating economy.

Foremost among these features is the "true" diesel operating principle—solid fuel injected directly into a plain, open combustion chamber—which makes it possible to get the most power out of every drop of fuel with minimum wear and tear on the engine. "True" diesel operation in the Murphy Diesel is made possible by Murphy's Unit Fuel Injection System which eliminates all high pressure fuel lines and permits the precise control of fuel injection necessary for truly efficient operation.

Get full information, now, and plan to put Murphy's advantages to work for you.

MURPHY DIESEL CO.

5311 W. Burnham St., Milwaukee 14, Wisconsin

Engines and Power Units 90 to 190 H.P.
Generator Sets 60 to 116 K.W.

Critical Design Features Common to a Typical Big Heavy Duty Slow Speed Diesel and the MURPHY DIESEL

FEATURE	BIG DIESEL	MURPHY DIESEL
Does it have a plain open combustion chamber?	YES	YES
Does it have direct injection of solid fuel?	YES	YES
Are the pistons cooled?	YES	YES
Are cylinder liners removable and replaceable?	YES	YES
Does it have through tie bolts from head to bearing caps?	YES	YES
Are camshafts driven from the flywheel end of the crankshaft?	YES	YES
Does it have a hydraulic servo-type governor?	YES	YES

Use BAY CITY For Easier Material Handling

Working for T. J. James Construction Company of Miami, Florida, this BAY CITY Model 45 dragline keeps sand and gravel moving to a nearby road job without interruption. A Model "45" dragline handles small jobs with ease and tackles the big ones without hesitation . . . helical cut gears for smooth, quiet operation . . . tandem drums for straight, direct cablelead . . . 12½-ton rated capacity. The Model 45 is quickly convertible and whether equipped as shovel, dragline, clamshell, pile-driver, or hoe it is truly "the biggest value in ¾ yard machines". Write, wire, or phone for complete facts on the BAY CITY "45".

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SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

BAY CITY SHOVELS INC., BAY CITY, MICHIGAN See your nearest Bay City dealer for excavating and material handling equipment in sizes from ⅜ to 1¼ yard with crane rating up to 20 tons. Both crawler and pneumatic tire mountings.

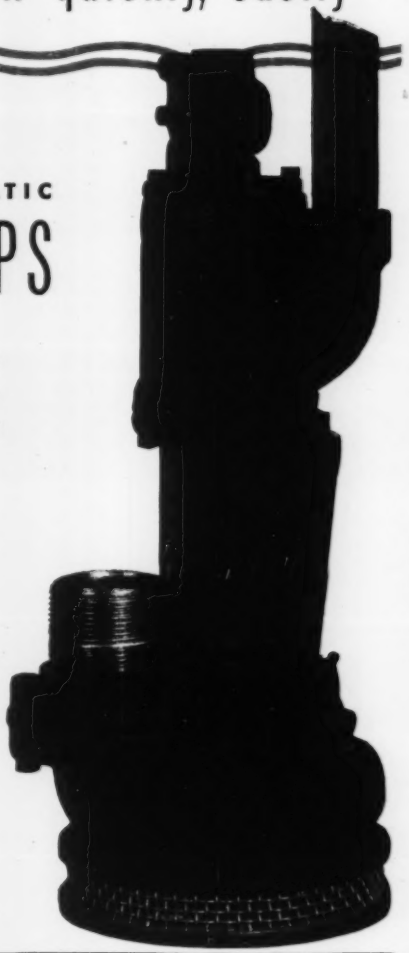
Pump out UNWANTED WATER quickly, easily

Thor

PORTABLE PNEUMATIC

SUMP PUMPS

Specified by users everywhere as the MOST RELIABLE pump for day-in and day-out sump operations



EXCLUSIVE WITH THOR—Extra capacity *automatic* Impeller Shaft lubrication for continuous operation up to a full shift without regreasing. Continuous air pressure force feeds lubricant, prevents foreign matter from working into impeller shaft bearings.

FOR COMPLETE DEPENDABILITY, Thor pumps feature selective capacity control for varying conditions, double acting speed governor, one-piece air-tight housing, "No Freeze" large exhaust system. Self priming.

PUMPS WILL OPERATE partially or fully submerged in dirty water, oil, sludge or sewage, with a capacity of 230 gallons per minute at a 10-foot head, 114 gallons per minute at a 60-foot head, at 90 lbs. pressure.

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Thor **PORTABLE POWER TOOLS**

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

MONOTUBES bring foundation costs down to earth!

● If you're looking for ways to cut foundation costs—specify *Monotubes.* Cost-conscious engineers and builders have proved on job after job that the exclusive advantages of Monotubes reduce costs . . . save time. Here are 5 reasons why:

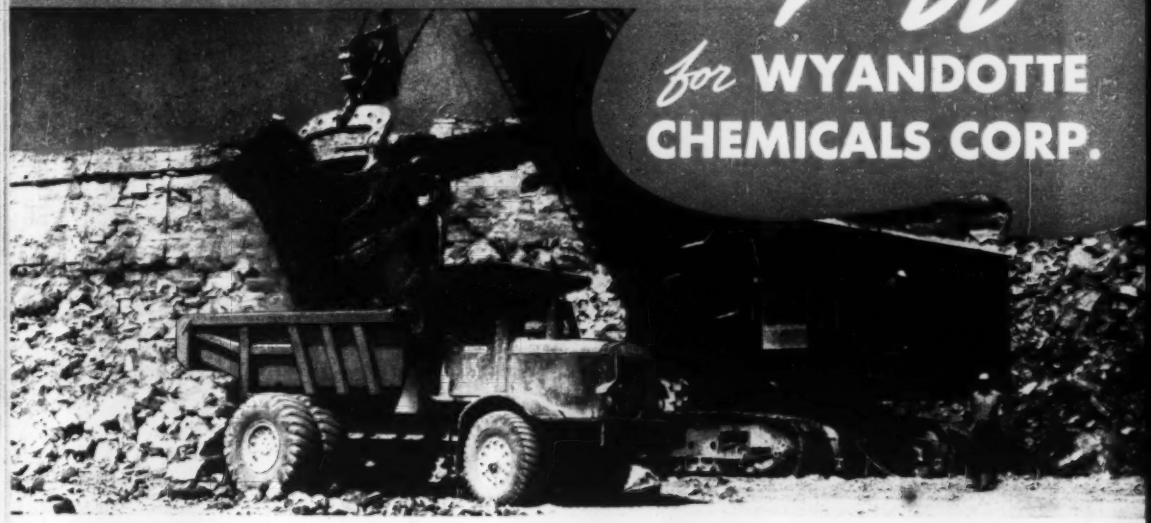
The fluted, tapered design speeds driving.
They're easily extendible to any required length, *right on the job.*
Thorough inspection is quick and easy before concreting.
Light in weight, they are easily and quickly handled.
Their sturdy construction eliminates use of driving mandrell.

Check over every time-saving, money-saving feature. You'll see how Monotubes bring foundation costs "down to earth". Available in gauge, size, and taper to meet varying soil conditions. Send for complete information. Your inquiry will be answered promptly. Write The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL
Monotube Foundation Piles

"EUCS" Pay Off

for WYANDOTTE CHEMICALS CORP.



At Alpena, Mich., Wyandotte Chemicals Corporation operates one of the world's largest limestone quarries — another job where "Eucs" are paying off by doing more work at less operating and maintenance cost.

Thirteen Rear-Dump Euclids of 22-Ton capacity replaced an electric haulage system for moving the rock from quarry to plant. Operating two shifts per day and six days per week, the "Eucs" haul approximately 800 tons per hour. The round trip averages 1¾ miles, with a maximum grade of 4 per cent. The "Eucs" are loaded with stone by shovels of 5 and 6 yd. capacity, and are used for removing overburden during winter months.

Wyandotte standardized on Rear-Dump Euclids because of their proved dependability and efficiency in mine and quarry operations. Their large capacity and fast travel speeds have increased production and lowered hauling costs at Alpena.

Euclid equipment has proved profitable for hundreds of owners on a wide range of off-the-road work. Your Euclid Distributor or Representative will be glad to discuss your requirements and show you how Euclids can do a better job for you.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

CABLE ADDRESS — YUKLID

EUCLIDS *Move the Earth*

BWH
DEPENDABLE RUGGEDNESS
BOSTON WOVEN HOSE & RUBBER CO.
CONCORD
STEAM #10
BOSTON, MASS.
BWH
1. Tough, long-wearing, abrasion-resistant cover.
2. Asbestos braid insures maximum cover adhesion, and includes NEW type static conducting wire.
3. High-tensile steel wire for strength, for safety.
4. Heat & oil resistant tube.

BWH WIRE BRAID STEAM HOSE CAN REALLY "TAKE IT"

HERE'S PROOF!

Tests in the field show our new Concord #10 Steam Hose is a star performer. It doesn't get stiff and brittle, as some hose does when saturated with scalding steam. It's easy to handle. It's next to scuff-proof, even when banged against machinery and yanked over rough surfaces. But somebody raised another question.

"What happens," they asked, "if this wire-braid hose should be accidentally run over by a truck?"

To answer that question, we deliberately ran a 30-ton truck over our new Concord #10. What did happen? Nothing! The hose kept right on with its trouble-free performance.

Naturally we don't recommend such treatment. But we do say it's compelling proof that our Concord #10 is the last word in sturdiness. Here's what makes this hose outstanding:

1. Same dependably strong, heat and oil resistant tube that has won fame for extra service in BULL DOG Steam Hose.
2. Braids of high-tensile steel wire, heat and pressure resistant.
3. Asbestos braid assures perfect cover adhesion, includes NEW type static-conducting wire.
4. Tough cover, specially designed to resist abrasion and high temperatures.

With these features, it's easy to see why the new Concord #10 meets every need for steam hose that withstands 200 lb. working pressure with SAFETY, does a real job in helping you cut maintenance costs.

☆ ☆ ☆

HAVE YOU A JOB WHERE STAMINA COUNTS?

Bring us your toughest problems. We're specialists in solving them. Consult your nearest BWH distributor or write to us direct.

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DO 4 DAYS' WORK IN 3

with

Air Plus pressure* behind your tools

New Jaeger compressor ratings mean steady 90 lbs. pressure

at which tools do 30% to 40% faster work

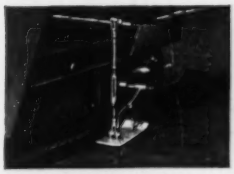
Drills and breakers, that loaf under weak 70 lbs. pressure from undersized compressors, get up and go to work with Jaeger air power on the job. Jaeger's "new standard" ratings provide the air you need to keep tools working at top pressure, increase their speed an average of 200 blows per minute and put full impact into every blow. *Users will tell you they can do as much work in 3 days as they used to do in 4, with the same men and tools.*

From the Model 75, that runs a heavy breaker at full 90 lbs. pressure, up to the Model 600 that runs two big wagon drills at top efficiency, every "Air Plus" rating is designed to match today's tools. See your Jaeger distributor, or send for Catalog JC-8.

*"*Air Plus pressure*" means steady 90 lbs. at the tool; requires more air than old 60 to 500 cfm ratings established in 1932.

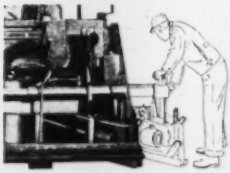
the Paver of the future

JAEGER'S BP-5



Automatic Grade Matching

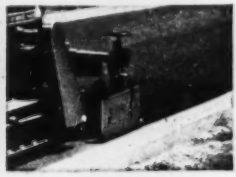
12' Equalizing Runners



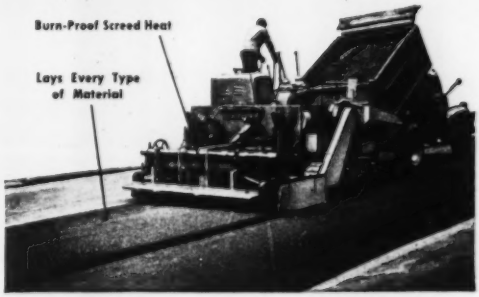
Instant Width Change up to 12½'

Oscillating Bevel-Tooth Screeds

No Weight to Seal New Mat



Lays Flush to Curbs



To the basically correct principles of paver design long-proved in earlier model Jaeger pavers, the Model BP-5 adds many important improvements in automatic precision and adaptability to the varied materials and conditions encountered in road, street and airport work. For complete information, see your Jaeger distributor or send for Catalog BP-9. Early deliveries will be limited to orders already on hand.

THE JAEGER MACHINE COMPANY

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Leading distributors in 130 cities of the United States and Canada sell, rent and service Jaeger Engineered Equipment

PUMPS • AIR COMPRESSORS • MIXERS • HOISTS • TOWERS
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EXIDE BATTERIES put "ZIP-AND-GO" in Diesel engine cranking

That's because they're built specifically for the job . . . built with extra power for the toughest of off-the-highway cranking . . . built with extra ruggedness to withstand hard service, year after year, in all climates. You can always count on Exide Batteries for dependable performance, long life and low cost maintenance.

Exide engineers have a thorough understanding of Diesel cranking requirements. This has been gained from long and close association with the Diesel industry, and from more than three-score years of battery-building experience. Exide engineers will be glad to cooperate with you in applying storage batteries to fit your needs.

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1888—DEPENDABLE BATTERIES FOR 61 YEARS—1949

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THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

Pittsburgh Steeltex Floor Lath

gives you both

Form and Reinforcement

The placing of floors moves swiftly, smoothly and at a big saving in time and material with Pittsburgh Steeltex Floor Lath. This combination of form and reinforcement for concrete and gypsum floors and roofs eliminates the need for slow, costly form-work.

Pittsburgh Steeltex Floor Lath is a combination of a uniformly spaced welded wire mesh laced to a waterproof cord-reinforced backing. The lacing wires are crimped to permit separation of the backing which gives you automatic imbedment from the weight of the mix. The waterproof backing holds the water in the mix so that it must evaporate slowly which gives maximum strength and assures proper curing of the slab. This also minimizes drip, prevents loss of cement and eliminates cleanup expense.

For better floors and roofs use Pittsburgh Steeltex Floor Lath—it will save you time and money. See our catalog in Sweet's or write for your copy of D.S. 133 to Pittsburgh Steel Products Company, Department EN, Pittsburgh 30, Pennsylvania.

PITTSBURGH STEEL PRODUCTS COMPANY

A Subsidiary of Pittsburgh Steel Company

Pittsburgh 30, Pa.

THE BLAW-KNOX COMPLETE PACKAGE has EVERYTHING for low cost concrete construction

IN the Blaw-Knox complete package, there's every piece of construction equipment you need to put your work on a cost-cutting assembly line basis. Profits start with Blaw-Knox Clamshell Buckets, increase as the work flows steadily step by step to the other Blaw-Knox machines . . . each one engineered to speed production and lower costs.

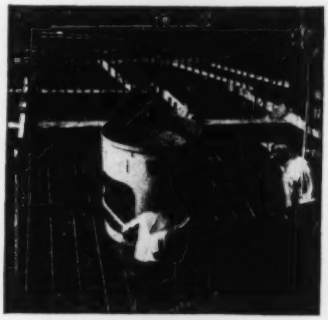
Economy-minded construction men use the Blaw-Knox ONE SOURCE package . . . it means modern design, time-saving repair and parts service, and assures a unified production set-up that operates at a profit on every job. Your Blaw-Knox distributor will give you complete details.

PORTABLE AGGREGATE BATCHING PLANTS — You get accurately batched aggregates *faster* and at lower cost with these flexible, high capacity units, developed to meet today's high speed construction demands. Designed to fit the requirements of your particular job, they are available in 2, 3 and 4 compartment styles, in capacities ranging from 100 to 120 tons. All-steel, self-cleaning storage bins with steep hopper slopes insure rapid and complete discharge. Easy set-up and take-down saves time, cuts haul costs. Beam scales or dial scales are optional.

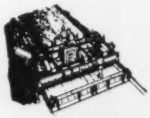
PORTABLE BULK CEMENT PLANTS — Cut your costs of handling large volumes of cement. 200 and 400 barrel sizes are furnished, with combination arrangements which double these capacities and still retain complete portability. Speedy erection and relocation eliminates lost time between jobs. Plant includes portable bin, cement weighing batcher of required size with scales, filling and discharge gates, dust cover and discharge chute; also, 50 t.p.h. enclosed type cement elevator with screw feeder and either electric motor or gas engine drive.

CENTRAL MIXING PLANTS — Concrete, batched and mixed in one plant, assures accurate, uniform batches, eliminates waste, speeds construction and keeps costs low. These high production units offered in composite bin styles with 2, 3, 4, or 5 compartments, and capacities to meet your job requirements. Weighing batcher discharges into stationary mixer or through dry batch chute into truck mixers.

BLAW-KNOX CONCRETE BUCKETS speed your work, cut concrete pouring costs. Ease of opening and closing discharge gate under full load, plus one-man operation with full or partial load, means fast, high-volume production. Roller-Gate Controllable Discharge Buckets, with exclusive discharge gate design, are available in sizes from 1 to 8 cu. yds. for normal and low slump concrete. For placing concrete under water, Tremie Type Buckets from 1 to 8 cu. yds. capacity are furnished. Double Clam-Gate Buckets are offered in 3 sizes—½, ¾ and 1 cu. yd.—for general construction work.



STEEL STREET FORMS



PRECISION SUBGRADERS

MULTIFOOTE PAVERS

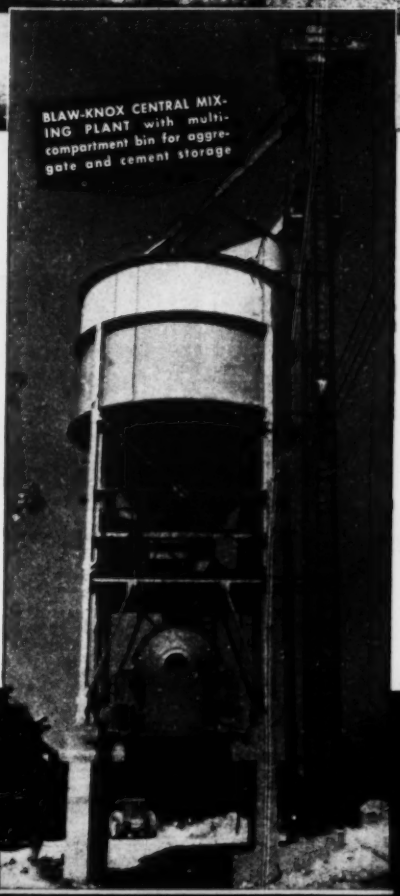
BLAW-KNOX

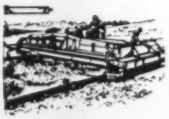
BLAW-KNOX DIVISION OF Blaw-Knox Company,
Farmers Bank Building,
Pittsburgh 22, Pa.

The Foote Co., Inc.,
Subsidiary of Blaw-Knox Co.,
Nunda, N. Y.

BLAW-KNOX CLAMSHELL BUCKET
100-ton 2-compartment portable AGGREGATE BATCHING PLANT
600-bbl. portable BULK CEMENT PLANT
600-bbl. PORTABLE BULK CEMENT PLANT handling fly-ash a admixture for concret

THE BLAW-KNOX HI-BOY TRUK-MIXER with the exclusive REVOLVING HOPPER, permits faster charging, faster discharging, with minimum seal maintenance. Mixes concrete thoroughly and uniformly, and discharges *all* the concrete in the drum, without segregation.





PAVING SPREADER-VIBRATORS

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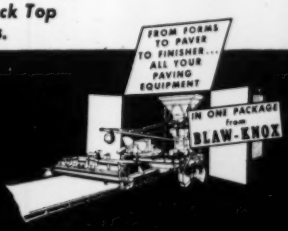
Also: Steel Paving Forms, Truck Mixer Loading Plants, Adnun Black Top Pavers, Kinetic Mixers.



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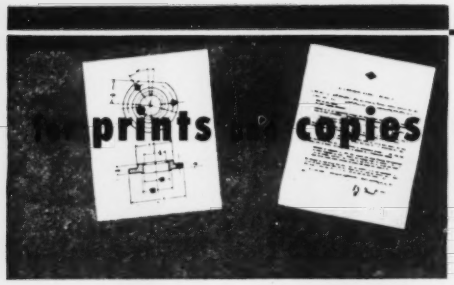

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exact

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The Body Engineering Department of a well-known auto maker uses precise BW Prints for large body drawings. Some of these drawings are 18 to 20 feet long, yet are amply true to scale. (The department also makes precise BW Prints of all body detail drawings.)

BW Prints are precise because there is no intermediate step between the original drawing and the print. No chance for error to creep in. The direct BW Process can never transpose, add, or delete material—except as you deliberately alter the original.

BW Prints are precise because they are *positives:* there is no reversing of values. Hence BW Prints normally show black or colored lines against a white or tinted background. Tests prove that these are more legible—more easily understood than are negatives—such as blueprints.

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● Here's steady, economical power for a better day's work, day after year. Here's power with a pedigree of performance backed by Chrysler Corporation skills and techniques. Whether it be in tractors that tend crops for the world—or in powered equipment serving a hundred varied industries—Chrysler Industrial Engines and Power Units prove their dependability *on the job!* It will pay you to get the facts on the entire Chrysler Industrial line. Just write . . .

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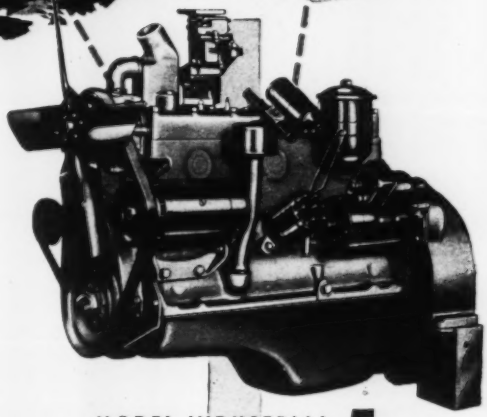


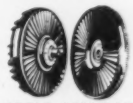
MODEL INDUSTRIAL 5
SIX CYLINDER

Bore 3¼". Stroke 4⅜". 217.7 cubic inches displacement. Engine assembly comes equipped with 6-volt electrical equipment, 4-speed transmission, 19" four-blade suction fan, dustproof distributor and oil bath air cleaner. Generally used in powering tractors and other mobile industrial units for economy and dependability.

CHRYSLER

INDUSTRIAL ENGINES AND POWER UNITS

HORSEPOWER WITH A PEDIGREE



MODELS AVAILABLE WITH *gyrol* FLUID COUPLINGS

"Tastes kind of funny lately, Ma?"

DURING the past half-century, sanitary engineering has made great strides in combatting diseases caused by pollution of water sources. The year 1899, when our Company was established, also marked the development of sewage treatment in America. Today, more than 6,000 sewage treatment plants are in operation serving over half of our urban population.

The growth of water supply and gas service during this period has been equally remarkable. Today, 12,000 public water supply systems serve 85 million people. More than 20 million homes are furnished with gas for cooking and heating.

It has been our privilege to share in the progress of these public services by providing cast iron pressure pipe, for water, gas and sewer mains, and for sewage treatment and water purification plants. Better pipe today, naturally, than 50 years ago—stronger, tougher, more uniform in quality. An old-time pipe founder would be amazed by the improved casting methods, production standards and quality controls in operation at our several foundries.

To those responsible for the great progress in water supply, gas and sanitation service and their contribution to better health and living over the past fifty years, America pays tribute.

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1899-1949
U. S. Pipe & Foundry Co.
Makers for 50 years of cast iron pipe for water, gas and sewerage service.
General Offices: Burlington, N. J.

THEW-LORAIN 1899 50 YEARS 1949 ANNIVERSARY

TRAIL BLAZER

on boulevard or cross-country

Lorain TL-20 Moto-Cranes *are cutting* construction costs

Wherever the job—in any kind of going—be it boulevard, rutted back road, or cross-country, your Lorain TL-20 Moto-Crane will take the "short cut" to lower construction costs. Traveling on a rubber-tire mounting, the TL-20 Moto-Crane writes its own transportation ticket between jobs at speeds up to 30 M. P. H.

And what if each job does pose a different material handling problem? With interchangeable boom equipment, this "quick change artist" can vary its attack as a shovel, crane, clamshell, dragline or hoe. If you want a machine with rugged dependability and versatility for any type of operation—which will come up with a healthy profit on completion of the job—see your local Thew-Lorain Distributor—today. Ask him to show you TL-20's at work in your locality. You'll find it a "convincing experience."

THE THEW SHOVEL CO. • Lorain, Ohio
Cable Address: UNLOADER

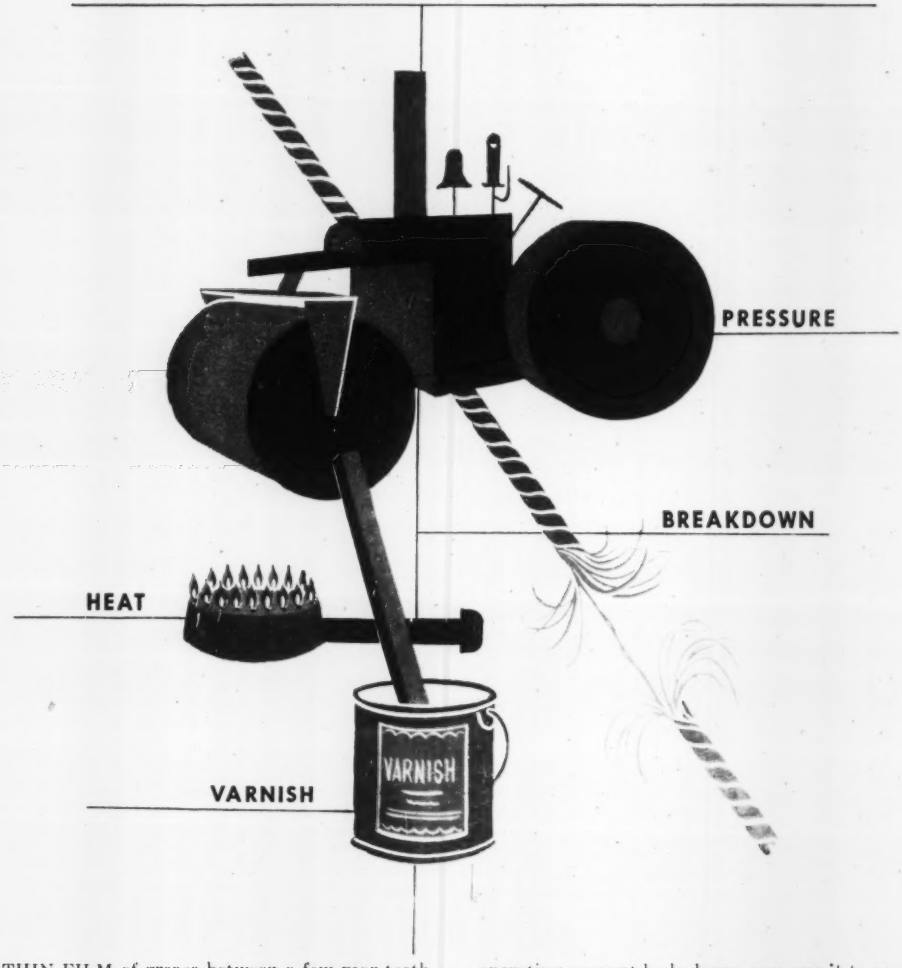
ONLY TL-20 HAS ALL THESE JOB-TESTED FEATURES

Anti-Friction Bearings • 5 Identical Shoe Clutches 2 Crawler Speeds (Standard) • Unit Assembly for Easier Service • Starter and Generator (Standard) 9 Rubber-tire Mountings Available • 2 Operating Lights (Standard) • Independent Rope Crowd Shovel • "Full Circle" Crawler Steering • Drop Forged Crawler Treads • All-Purpose Crane Boom Interchangeable Parts.

Lorain

Thew TL 20 Lorain

Stabilized to resist —



A THIN FILM of grease between a few gear teeth is the only "bumper" between a vehicle's loaded weight and the torque of its engine. That's why it's so important that a gear lubricant retain its cushioning "body" despite the heat and pressure of severe summer service.

No better grease than Quaker State Quadrolube exists for this purpose. It's *stabilized* against breakdown and thinning. It inhibits rust and corrosion, resists all the factors which attack lubricating effectiveness. It's refined from 100% pure Pennsylvania grade crude oil—you know what that means in inherent quality. So if the "maintenance" item in your operating account looks large, you owe it to yourself (and your vehicles) to use Quaker State Quadrolube.

STABILIZED

QUAKER STATE

QUADROLUBE

AND SUPER QUADROLUBE*

*Specially compounded for the lubrication of hypoid gears

QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA

The article with the lowest price tag can be tempting, can look like a bargain. Yet another brand, with a higher first cost, may be far more economical in the end — because of the longer, better service it gives.

You may find sometimes that Bethlehem wire rope is a bit higher in first cost than some other brand; but on the basis of long-range economy — *true* economy — we invite you to compare it with anybody's product, any place, any time.

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And that's the only real yardstick — the only *real* measure of economy.

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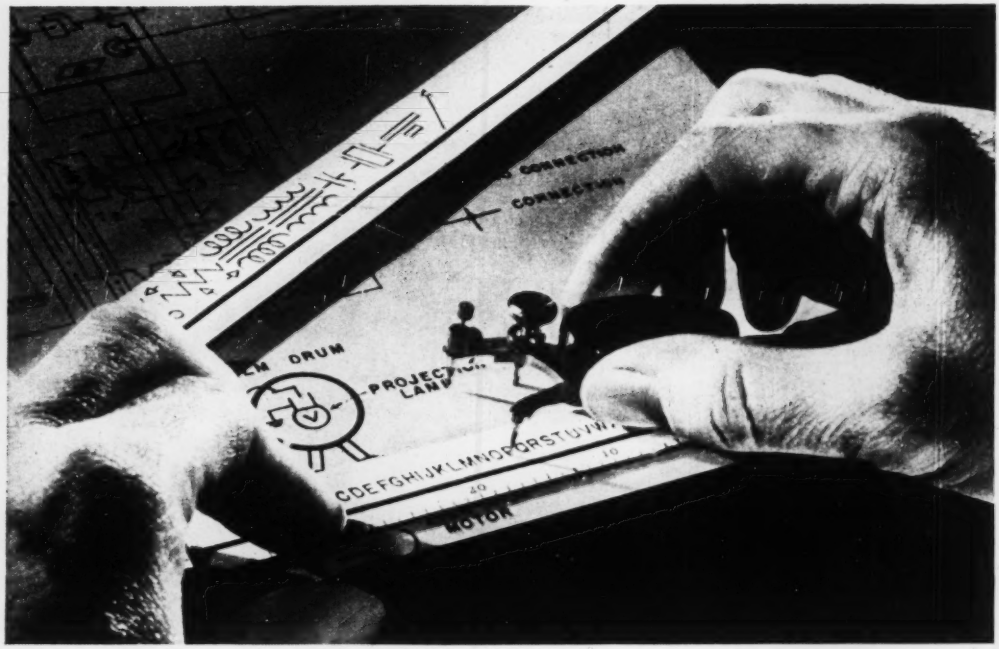


YOU LETTER FASTER, BETTER WITH LEROY* EQUIPMENT

Lettering and symbol drawing is uniform and quick when you use LEROY "controlled lettering" equipment. It requires no special skill or training. You can form perfect letters on the very first trial . . . develop speed with a few minutes of practice. LEROY uniformity guarantees the same crisp, precise lettering on all your drawings. Moreover, LEROY lettering is free from the risk of smearing because the template is always well below the working line.

LEROY equipment offers a wide variety of alphabets and sizes, including Regular Gothic; Reversed, Condensed, Extended and Outline Gothic; Cheltenham; Greek; Isometric alphabets and ellipses; Electrical, Map and Welding symbols. In addition, K&E can make special LEROY templates with your own words, phrases, designs, symbols or trade marks.

You may start your LEROY equipment with a single template, scriber and pen; or you may choose one of the complete LEROY sets that will give you a full lettering range.

Ask your nearest K&E Dealer or Branch for a demonstration of LEROY equipment or write to Keuffel & Esser Co., Hoboken, N. J. for the LEROY Booklet.

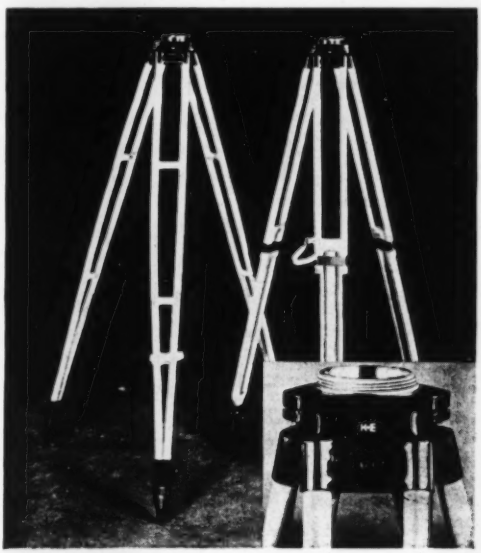
in creating . . .

partners of the draftsman, the engineer and the scientist in shaping the modern world

NEW K&E WIDE FRAMED TRIPODS GIVE MAXIMUM STABILITY

The wide framed leg construction of these new K&E tripods and the wide, all-metal hinges joining the legs and head result in great torsional stability. This makes the instrument much steadier—less vibration—in windy weather. Legs are straight grained maple. They are easy to plant firmly, because of their long steel "Stoodite" tipped shoes and large spurs—the kind a man can get his foot on, even with boots or galoshes. The head fits all instruments with the standard 3½ inch by 8 threads. K&E Wide Framed Tripods are made in stiff leg and extension styles.

Ask your K&E Dealer or Branch to show you these tripods, or write to Keuffel & Esser Co., Hoboken, N. J.



ALBANENE* TRACING PAPER WILL NOT DETERIORATE WITH TIME

ALBANENE Tracing Paper is made from a 100% pure rag base. Its fine printing transparency is due, not to oils that leak and "bleed," but to a synthetic transparentizer that K&E developed specially for this purpose. Prints made today from drawings made on ALBANENE years ago, prove conclusively that ALBANENE does not turn brittle nor lose its transparency with time.

Ask your K&E Distributor or any K&E Branch for a sample or write to Keuffel & Esser Co., Hoboken, N. J.

*Trade Mark ®

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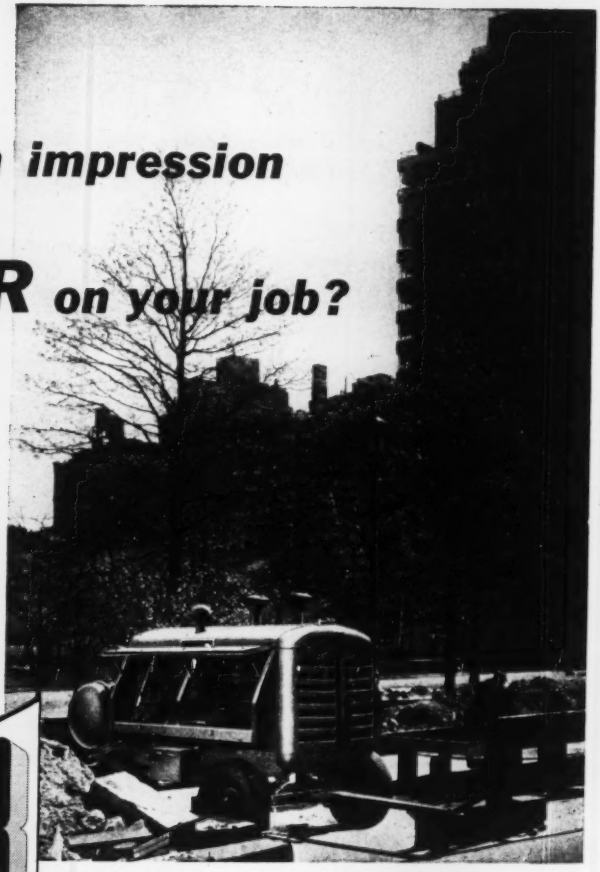
Do you make an impression when you put AIR POWER on your job?



Ingersoll-Rand MOBIL-AIR AIR POWER

MOBIL-AIR Power makes a *big* impression. It builds prestige that gets you more and bigger jobs.

MOBIL-AIR Compressors, and the other members of the "I-R Contractor Team," bring you more profit, too, doing your jobs *quicker*, and doing the *"impossible."* You handle *more* jobs. More profit every time.

MOBIL-AIR Compressors created and built by Ingersoll-Rand are durable, reliable, resistant to depreciation... They're husky and efficient, and have plenty of reserve.

MOBIL-AIR Compressors are equipped with Drill-More Multi-Speed Capacity Control for bigger fuel savings, for longer compressor life, and for greater drill power. You'll make more money with MOBIL-AIR Compressors on your job.

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4. Application "know how."

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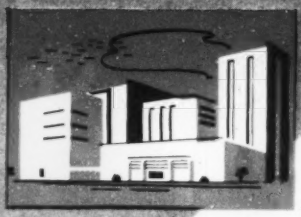

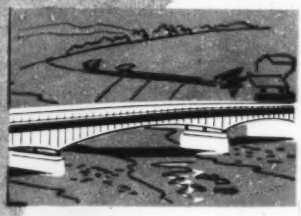

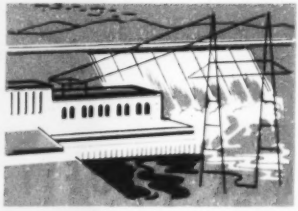

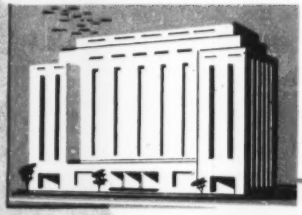

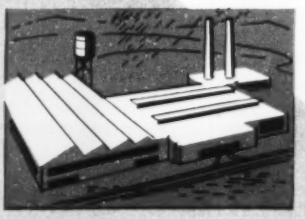

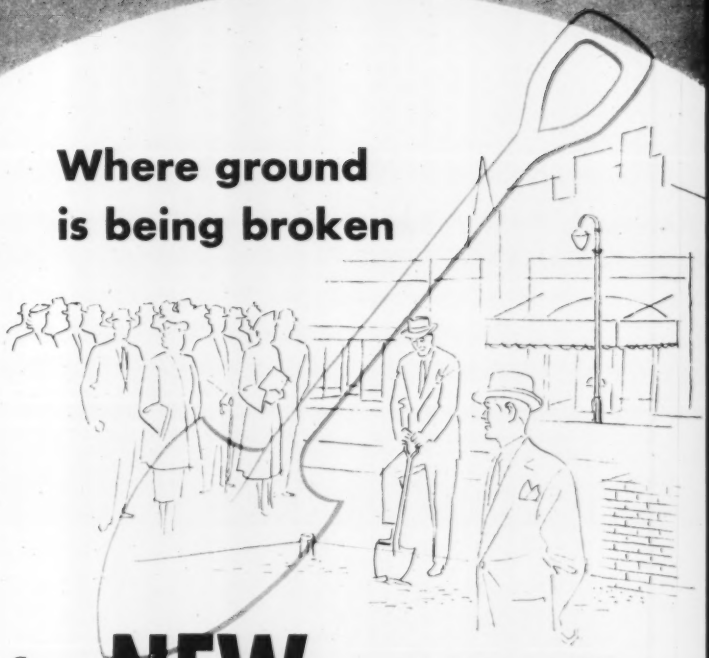

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Fort Pitt Bridge

is on the JOB!

FORT PITT BRIDGE WORKS

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Plant at Canonsburg, Pa.

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LOWER MAINTENANCE — HIGHER PROFITS

- ★ Full Payload Every Trip . . . FOR MORE PROFIT!
- ★ Rugged All-Welded Construction . . . LOWER MAINTENANCE COST.
- ★ 12% Manganese Steel Chains and Fittings . . . STANDARD ON ALL TYPES.
- ★ A Type for Every Job . . . light, medium, and heavy-duty. WITH OR WITHOUT PERFORATIONS.

Check your bucket when you find your materials handling costs on the upgrade. If it isn't doing its part, *switch to a Hendrix Dragline Bucket* . . . for low-cost, high-profit operation. They're engineered to take full bites, year after year, with trouble-free operation. Bumps, shocks, stress and strain they take in their stride. For maintenance-free digging and MONEY IN YOUR POCKET switch to HENDRIX!

HENDRIX *Lightweight* **DRAGLINE BUCKETS**

For Descriptive Literature Ask Your Dealer or Write

HENDRIX MANUFACTURING CO., INC.

MANSFIELD — LOUISIANA

Raymond

Pattern FOR Permanence

RAYMOND CONCRETE PILE CO.

Subsidiary of Raymond Group

Manufacturers and Licensees

140 CEDAR STREET • NEW YORK 6, N. Y.

52 YEARS — FOUNDED 1897 — OF PROGRESS

JOBS that call for a permanent pile foundation and for Raymond equipment, Raymond experience and Raymond skill. From preliminary soil investigation to completed foundation, you can be sure that the Raymond organization will work quickly, economically and at minimum cost.

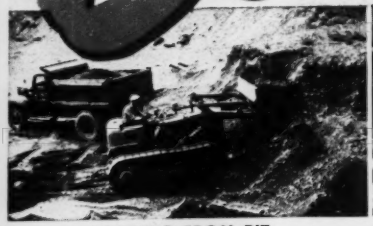
Raymond cast-in-place concrete piles cannot be excelled for permanence and carrying capacity. Many types are available to meet any subsoil condition. With Raymond on the job, full compliance with job requirements is assured.

Pictured above is Raymond's 100-pier foundation for the new Gimbel Brothers Department Store in Philadelphia, Pa.

THE SCOPE OF RAYMOND'S ACTIVITIES includes every recognized type of foundation construction—concrete, composite, precast, steel, pipe and wood piles; also caissons, underpinning, construction involving sheet piling, shoring, sheet piling, bridges and river improvements and bridges for rail transportation.

Cut Costs

Not tied down to specialized duty —



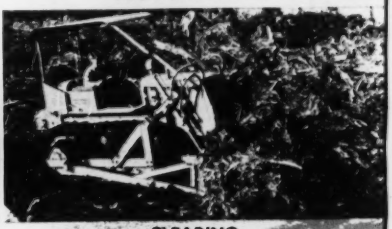
LOADING FROM PIT

LOADING SNOW

PLOWING SNOW

WINCH AND HOIST WORK

PULLING SCRAPERS



CLEARING

FEEDING ASPHALT AND CRUSHER PLANTS

BUILDING SANITARY FILLS

A Great Tractor WITH A GREAT ALLIED LINE

Available with fully matched Baker, Gar Wood and Carco bulldozers . . . Drott Skid-Loader . . . Baker snowplow . . . Gar Wood scraper . . . Carco winch . . . Tractomotive Tracto-Shovel with interchangeable attachments—1 cu. yd. standard bucket, ¾ cu. yd. narrow bucket, 2 cu. yd. light materials bucket, 1 cu. yd. rock bucket, 1 cu. yd. magnesium bucket, teeth for all buckets, heavy-duty bulldozer blades (narrow and wide) and V-type snowplow.

HANDLING COAL

GRADING HOMESITES

FLOOD CONTROL

LIFTING WORK

CLEANING BEACHES

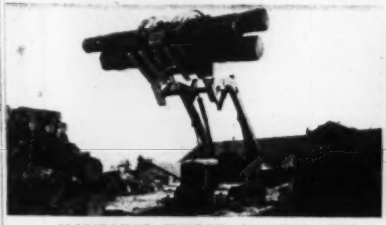
On All Kinds of Work..

WITH THE VERSATILE ALLIS-CHALMERS HD-5

Completely New IN DESIGN

New Performance . . .
New Work Capacity . . .
New Simplified Servicing
Weighs 11,250 lbs.
Provides 40.56 drawbar hp.
50.25 on belt
2-Cycle GM Diesel Power

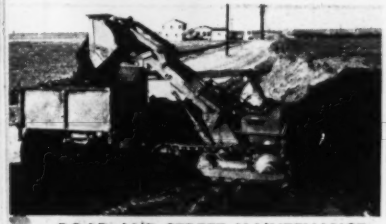
— Yet gives special performance on every job



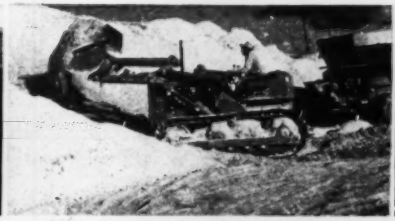
HANDLING TIMBER, LUMBER, ETC.

BACKFILLING

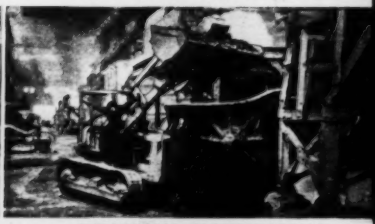
GRADING PARKING LOTS



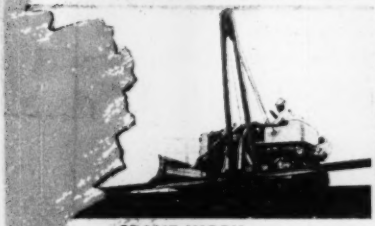
ROAD AND STREET MAINTENANCE



MATERIAL HANDLING



INDUSTRIAL PLANT WORK

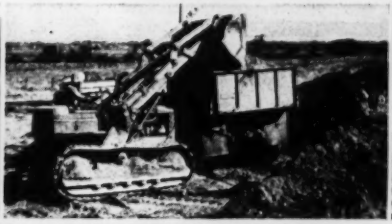


CRANE WORK

LOADING ROCK

TUNNEL AND SUBWAY EXCAVATION

DIGGING BASEMENTS, CULVERTS, ETC.



LANDSCAPING AND STRIPPING

UNDERGROUND MINING

ALLIS-CHALMERS

TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

Now...The New ROCKMASTER 16 Blasting System

Less Bark . . . More Bite

Greatest Improvement in Blasting Since Atlas Pioneered Rockmaster— the original milli-second blasting system!

The *new* ROCKMASTER 16 Blasting System has been under trial for almost two years. It is now ready to go into action in pits, quarries, underground work, construction jobs . . . a basic improvement over the sensational original Atlas Rockmaster system.

ROCKMASTER 16 brings you a *sixteen-stage* milli-second delay system! It gives you *all* the advantages of the original ROCKMASTER three-delay system PLUS new and even better control over breakage, throw, noise, vibration . . . sufficient milli-second delays to fill out large underground rounds and shots requiring a large number of delays.

Here are just a few of the many outstanding advantages of the new ROCKMASTER 16 *Blasting System demonstrated in actual field work.*

BETTER BREAKAGE means cheaper loading and milling . . . less secondary shooting. Wide choice of milli-second delays gives you improved control over material size.

CONTROLS BACK-BREAK . . . SAVES COAL IN STRIPPING. *Sixteen* periods give you long or short milli-second delays as needed for different formations. Explosive energy is directed toward burden—not wasted in back-break or in degradation of coal.

INCREASES MINE SAFETY. Less vibration means less strain on timbers and roof, less dust, quicker return to face. *Sixteen* delay periods fire in 550 milli-seconds!

REGULATES THROW. Gives high rock piles at the face—or lower piles farther out. *Sixteen* ROCKMASTER periods give you remarkable control of throw.

MORE MATERIAL PER POUND OF EXPLOSIVES. More footage per round. Makes savings in dynamite, in drilling, or both.

FEWER COMPLAINTS ABOUT NOISE AND VIBRATION. ROCKMASTER 16 frequently cuts vibration more than 60%—even when more dynamite is used!

ROCKMASTER 16 TIMINGS

Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550

ROCKMASTER: Reg. U. S. Pat. Off.

ATLAS EXPLOSIVES

"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • *Offices in principal cities* • *Cable Address – Atpowco*

★★★★ Barber-Greene ★★★★

B-G COST SAVING BULLETIN No. 4902

CONTRACTOR LOADS 80,000 YARDS PER YEAR WITH ONE BUCKET LOADER

647331

Reports Loading Cost of 1/2 Cent per Yard

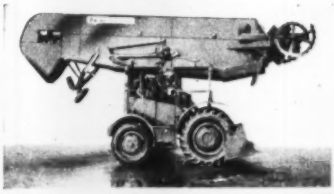
Ashland, Mass. — Backed by years of experience with all types of truck-loading equipment, and close cost accounting on each type, the Ashland Sand and Gravel Company, Inc. reports that the record for lowest cost and fastest truck loading goes to its B-G 545-A Bucket Loader.

In loading approximately 80,000 yards of material yearly—sand, stone, loam, etc., the B-G Loader brought costs down to one-half cent per yard, including depreciation and maintenance as well as operating expense. This low cost also includes the time involved in moving from stock pile to stock pile—and would of course be even lower if the Loader worked from only one stock pile. In reporting these facts, A. N. Leverone, the company's president, further adds, "In our opinion the principle of the continuous flow of material as incorporated into your Bucket Loader guarantees high capacity loading at a steady uniform rate with a minimum of maintenance and operating expense."

Broad Range of Users Cuts Costs with Heavy-Duty B-G Loaders

647673

Modern Controls Aid Operators **Conveniently banked controls help make any man an expert operator quickly. Hydraulic boom hoist is power operated. Hydraulic brakes on main drive wheels.**



64896

Boom Cradles For fast transport, boom quickly lowers to horizontal position to give low clearance. Two travel speeds—turning diameter is 31 feet.

Builders, general contractors, state and highway departments, material dealers, aggregate producers, black dirt contractors—all report new low costs in truck loading with the B-G 545-A Loader. This heavy-duty, 3 cubic yards per minute Barber-Greene provides high capacity loading of all free-flowing materials such as stone, gravel, sand, cinders, coal, coke, top soil, fertilizer, etc. Mounted on tractor-type pneumatic tires with automotive steering, the 545-A combines mobility and maneuverability with compactness. It gets around quickly in cramped areas and can be readied in a few minutes for moving from one location to another. With its Spiral Feed and welded steel buckets, the 545-A loads clean—has the ability to dig into bank top soil or shoulder. Completely modern in design the 545-A has centralized operating controls, floating boom, automatic overload release, self-locking adjustable swivel spout, heavy-duty battery, electric starter and other advanced features.

Loader Pays on 4,000 Tons Per Year

"Gives Us More Trucks," says Firm Head

Lake Forest, Ill. — Two years of loading aggregate with a B-G Bucket Loader persuaded the G. L. Blanchard Company to purchase a duplicate machine for loading their stoker coal—although their yearly volume is only 4,000 tons. Now in its second year of service, the additional B-G Loader has proved to be an excellent investment.

E. G. Lindenmeyer, president, reports, "the savings in the loading operation itself are only part of the story. Our real saving is in truck time. During our rush season the machine is invaluable and, in effect, **it gives us more trucks.**"

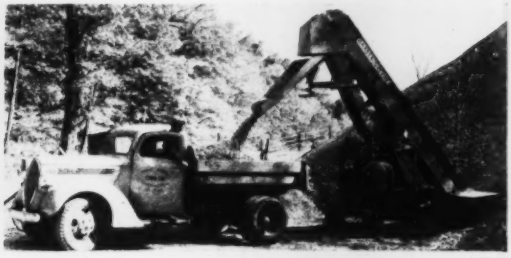
So far, the G. L. Blanchard Company has handled 39,000 tons of lime, stones, sand and gravel with their first Barber-Greene, and to date their repairs for both machines have totaled zero.

PRTD. IN U.S.A. — 000 M-4-49-AM

USERS REPORT BROADEST RANGE OF JOBS HANDLED BY VERSATILE BUCKET LOADERS

A621-B

For low clearance and long reach the B-G 522 Loader is equipped with swivel discharge conveyor which has a swing of 140°. Ready for truck towing at 20 m.p.h. with no adjustments. Loader easily converted to Snow Loader.

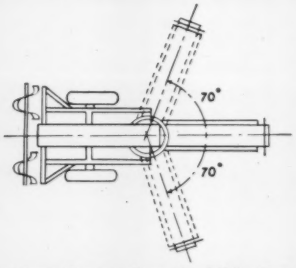


The 522 is also available with high boom and swivel spout. If low clearance is not necessary, this model is often chosen as it is lower in initial cost and provides the same capacity, portability and other performance features. The high boom type can be equipped with vibrating screen for scalping oversize.

SAN FRANCISCO FINDS MULTIPLE USES FOR BUCKET LOADER . . . VARIETY OF COST-REDUCING PERFORMANCES REPORTED

San Francisco, Cal.—When the Park Commission here bought an 82-A Loader with gravity screen, it was for one purpose: namely, beach cleaning. This was the job they had in mind, for the 82-A has gained quite a reputation for removing glass, nails, and other dangerous rubbish from city beaches. It wasn't long, however, before the broader usefulness of the 82-A was discovered. Now it's used for clearing away sand accumulations in the dividing strips on the highway, stripping loam, excavating for park paths, and regular truck loading, along with its beach-cleaning duties.

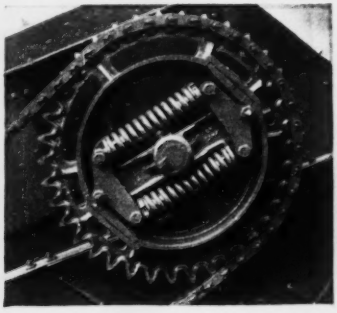
Milwaukee, Wis.—Elmer Engler Company, landscape gardener here, has been using Bucket Loaders for stripping top soil for the past ten years. Their latest Loader, an 82-A, was delivered in 1947, and since then has loaded and screened thousands of yards of clean top soil—300 to 400 yards per day—stripping from field or stock pile. Even in stripping operations they report a 5-yard truck is loaded in 4 minutes, and the high discharge of the 82-A facilitates stock-piling without the use of any additional equipment.



The above diagram shows the 140° swing of the swivel discharge conveyor 522.

Automatic Overload Release Saves Time and Maintenance—**All B-G Loaders are equipped with an automatic overload release mounted on the bucket loader head shaft. It automatically trips on overload and automatically resets itself.**

448150



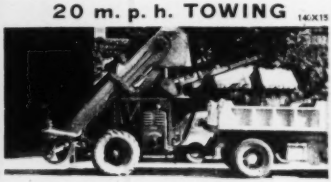
Hollywood, Cal.—To provide safety for participants in the "Sport of Kings" the Hollywood Turf Club and other Coast tracks use an 82-A Loader with special screen attachment to keep the turf free of pebbles which might cause injury to horses.

B-G LOADERS GET THERE FAST—MANEUVER EASILY

The Model 522 B-G Loader combines convenience, capacity and adaptability with a low initial investment and extremely low operating cost. It handles the broadest range of free-flowing bulk materials—as much as 1½ cubic yards per minute—and, as such, is a widely used machine among highway maintenance departments, contractors and municipalities. It is frequently used for leveling, landscaping and other similar operations.

The Swivel Conveyor Model 522 is designed to be low enough to avoid tree branches in street or road work—and to work inside warehouses or other locations where obstructions would ordinarily interfere. On its pneumatic tires, the 522 is towed behind trucks at normal speeds.

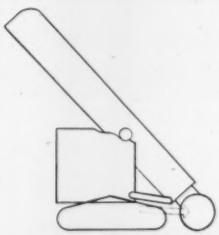
20 m. p. h. TOWING 140X15



B-G FLOATING BOOM ADJUSTS ITSELF TO GRADES AUTOMATICALLY

Assures Accurate Cleanup

The B-G Floating Boom provides for scraper thrusts to be exerted through push-arms direct from the crawlers. The boom is supported on rollers which allow it to automatically adjust itself to irregularities in the grade. This, combined with the follow-up scraper, makes possible a nice cleanup and digging to grade with a high degree of accuracy. Preliminary grades may easily be obtained—in the case of highway operations, for instance.



Floating boom design identifies all Barber-Greene's.

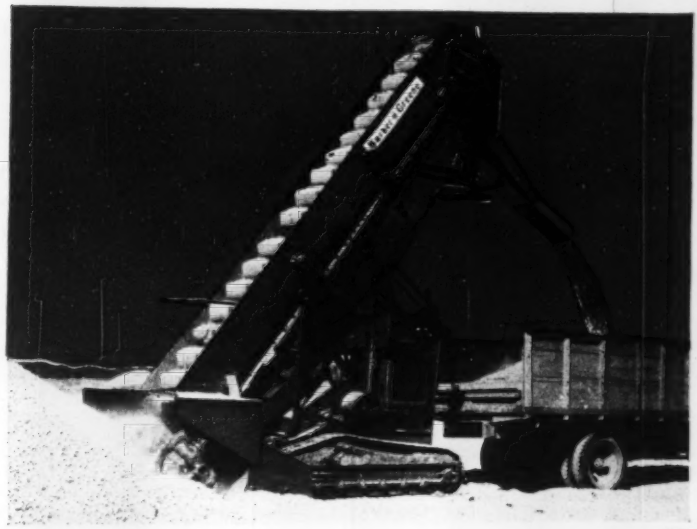
A Feature of All B-G Loaders

The patented Floating Boom is only one of many features in common with all B-G Loaders. Others include the automatic overload release, the B-G Synchronized Spiral Feed, truck type transmissions, simplified controls, etc.

LOADER HELPS DRY FERTILIZER

Morocco, French Africa—A large phosphate mine here uses a B-G 522 in an interesting aerating operation. Traveling down long windrows of phosphate, the 522 elevates the material and, in depositing it in neat, easily reclaimed piles, hastens the drying process.

125,000 TONS LOADED IN TWO YEARS TOTAL REPAIRS LESS THAN $75.00



647452

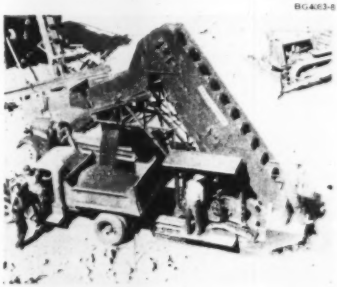
Aggregate Firm Tells Record of B-G Loader

Milwaukee, Wis.—H. F. Reinkel of the Lake Shore Stone Company claims he has the best stock pile loading unit on the market today in his B-G 82-A Loader—and backs his claim with impressive figures:

In the past two years, this Loader has handled 125,000 tons of sand—yet repair costs have been less than $75.00. In an 8-hour day, up to 710 tons are loaded by this crawler-mounted Barber-Greene. Operating the year around, the 82-A successfully breaks through frozen sand, and with its Spiral Feed, pulverizes it to make possible high capacity loading under rigorous conditions.

Mr. Reinkel sums up with the information that with his 82-A, he can exceed the loading capacity of much costlier and less versatile equipment.

BG4363-B



Loaders Pay Off at Bottom of River

Reno, Nev.—Down in the dry river bottoms near here, three B-G Loaders are efficiently at work reclaiming, screening and loading aggregates for the State of Nevada. Equipped with double-deck vibrating screens, the Loaders are able to segregate aggregates into the sizes required—making reclaiming, loading and screening a simple, simultaneous operation. Crawler-mounted, the 82-A's have the stability required for working in locations such as this.

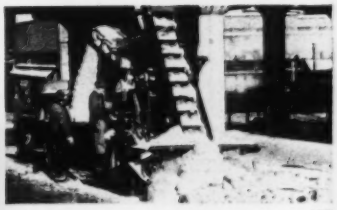
Crawler Mounting Often a Must

The full crawler mounting of the 82-A helps make possible its record performance wherever soft or unsure footing is encountered and or where maximum traction is desirable. This versatile, heavy-duty loader handles up to 3 cubic yards per minute, is available with a wide variety of accessories such as gravity screens, bar screens, vibrating screens, etc. It is widely used as a component of the Barber-Greene Travel Plant where it tows the Mixer and loads it from windrowed material.

ROAD CONTRACTOR AVERAGES 1,000 TONS PER LOADER, PER DAY

Mechanicville, N. Y.—There's a 93,000 ton hole in the ground near here where two 82-A Loaders excavated, screened and loaded bank run gravel for a State road project.

Collins Brothers, Road Contractors, put the Barber-Greene's to work after turning down other types of excavating and loading equipment as too expensive and too slow. The gravel deposit was found in a flat meadow and after scrapers had removed the overburden, the 82-A's took over the job on their own. They each excavated and loaded up to 1,000 tons per day, leaving a 25-foot hole covering many acres—plus a remarkable record for getting a big job done at minimum cost per ton.



44695

Mechanicville, N. Y.—Regular summer service as a Bucket Loader, plus additional value in winter as a Snow Loader, wasn't enough for this 522. Commissioner of Public Works now reports it's used to help keep the 21 miles of city streets free of leaves during the fall.

CITIES CONVERT BUCKET LOADERS TO SNOW LOADERS FOR YEAR-ROUND SERVICE

Removes 6-inch Fall in 18 Hours

Hagerstown, Md.—The first time this city's newly acquired 522 Snow Loader was put to work on snow removal, it removed 6 inches of snow from 3 miles of streets in less than 18 hours. According to J. A. Abbott, Jr., Superintendent of Streets, the 522's performance far exceeded that of other loaders used in the past. It was especially impressive in view of the fact that this was the first time it had ever been used, and also sufficient trucks were not available to keep it operating continuously. Mr. Abbott states, "I personally feel that the 522 Barber-Greene is the answer to the snow removal problem. It is economically priced for use in small towns and several could be used to solve the same problem in larger towns."

Helps Immensely on Snow Removal

Johnston, N. Y.—At negligible cost, this town has converted its 522 Bucket Loader into a Snow Loader capable of handling up to 5 cubic yards of snow a minute. Mr. A. H. McCaffrey, city engineer, affirms that the economies of snow removal are well appreciated by city officials and that the Model 522, with the aid of a few trucks, eliminates congestion and slowup of traffic caused by snow, especially in the business section.

Added incentive to use the 522 to clear streets fast in many cities is maintenance of parking meter revenue—a valuable source of income that suffers when streets are clogged with snow.

Removes 20 Yards of Snow Per Minute

For snow removal on a large scale the 548-A Loader offers the impressive capacity of up to 20 cubic yards per minute. Pneumatic-tired, with 4-wheel drive, it travels at 7 miles per hour road speed. Swivel convevor allows trucks to travel in the same direction as the Loader. And the 548-A is convertible to a Bucket Loader.

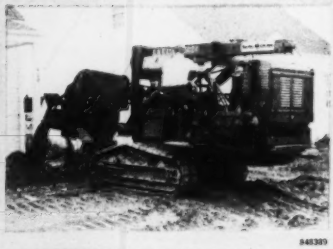
64452

THE B-G LINE CUTS COSTS ALL ALONG THE LINE...

See Barber-Greene for:

847550

B-G PORTABLE CONVEYORS: For moving all bulk materials and packaged goods. Variety of lengths, belt widths and capacities. Electric or gasoline power.

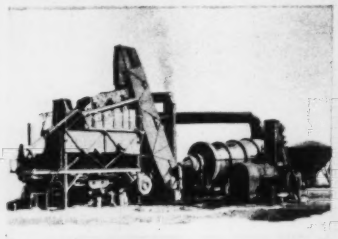


848389

B-G DITCHERS: Crawler and pneumatic tire mounted, for digging trenches from 5½" wide, 4' deep to 24" wide, 8' 3" deep.

846292

B-G PERMANENT CONVEYORS: Complete, standardized equipment including carriers, take-ups, drives, frames, etc.



846706

B-G BITUMINOUS PLANTS: Highly portable plants for producing all types of mixes—up to 120 T.P.H.

847350

B-G FINISHERS: Automatically place smooth level surface regardless of variations in subgrade.

846434

B-G COAL YARD EQUIPMENT: Belt and chain-and-flight Portable Conveyors; self-propelled, pneumatic-tired. Also, hopper-car Unloaders.

To Help You Cut Corners . . .
Barber-Greene Experience is at Your Service

Cutting costs these days is of major importance to everyone whose business involves the handling and rehandling of bulk materials. And it's a subject in which Barber-Greene representatives are well versed and widely schooled—in which their advice may prove invaluable to you. If you're attempting to cut costs by eliminating the use of expensive equipment and manpower, see your Barber-Greene distributor or write directly to Aurora, Illinois. You may be sure your problem will gain quick and helpful consideration.

Barber-Greene Company
Aurora, Illinois
Cable address "Bargreene"

Send information on the Barber-Greene's checked below as indicated:

- ☐ 545-A Loader
- ☐ 522 Loader
- ☐ 82-A Loader
- ☐ 522 Snow Loader
- ☐ 548-A Snow Loader
- ☐ _____
  Other B-G Equipment
- ☐ Have a Representative Call

Name _____

Company _____

Position _____

City _____ Zone _____ State _____

Before You Bid . . .
Before You Buy . . .
Send This Coupon!

Don't overlook any opportunities these days to widen your margin of profit! In the Barber-Greene line there are many machines—many opportunities—for efficient application to help you bid successfully, to help you operate your business more efficiently.

Fill in and send this coupon to get full, prompt information on the Barber-Greene equipment which interests you. Or see your Barber-Greene distributor.

BARBER-GREENE COMPANY
Aurora, Illinois

Rolling Steel DOORS

Manually • Mechanically • Power Operated

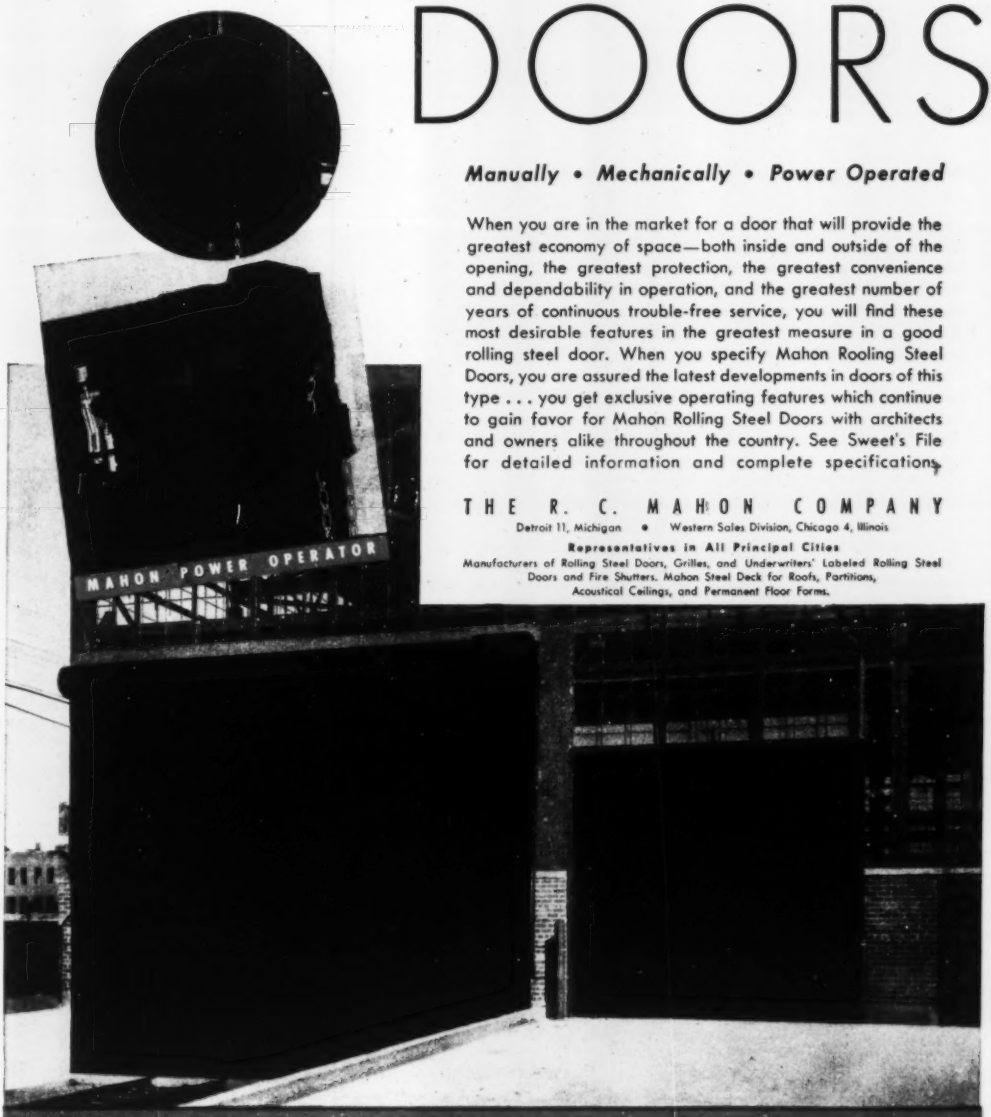
When you are in the market for a door that will provide the greatest economy of space—both inside and outside of the opening, the greatest protection, the greatest convenience and dependability in operation, and the greatest number of years of continuous trouble-free service, you will find these most desirable features in the greatest measure in a good rolling steel door. When you specify Mahon Rooling Steel Doors, you are assured the latest developments in doors of this type . . . you get exclusive operating features which continue to gain favor for Mahon Rolling Steel Doors with architects and owners alike throughout the country. See Sweet's File for detailed information and complete specifications.

THE R. C. MAHON COMPANY

Detroit 11, Michigan • Western Sales Division, Chicago 4, Illinois

Representatives in All Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters. Mahon Steel Deck for Roofs, Partitions, Acoustical Ceilings, and Permanent Floor Forms.

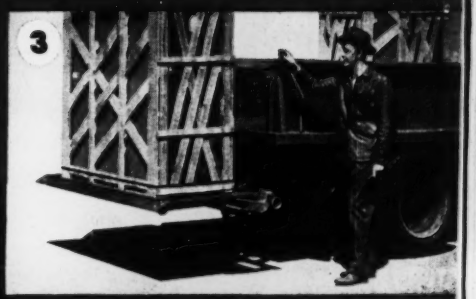


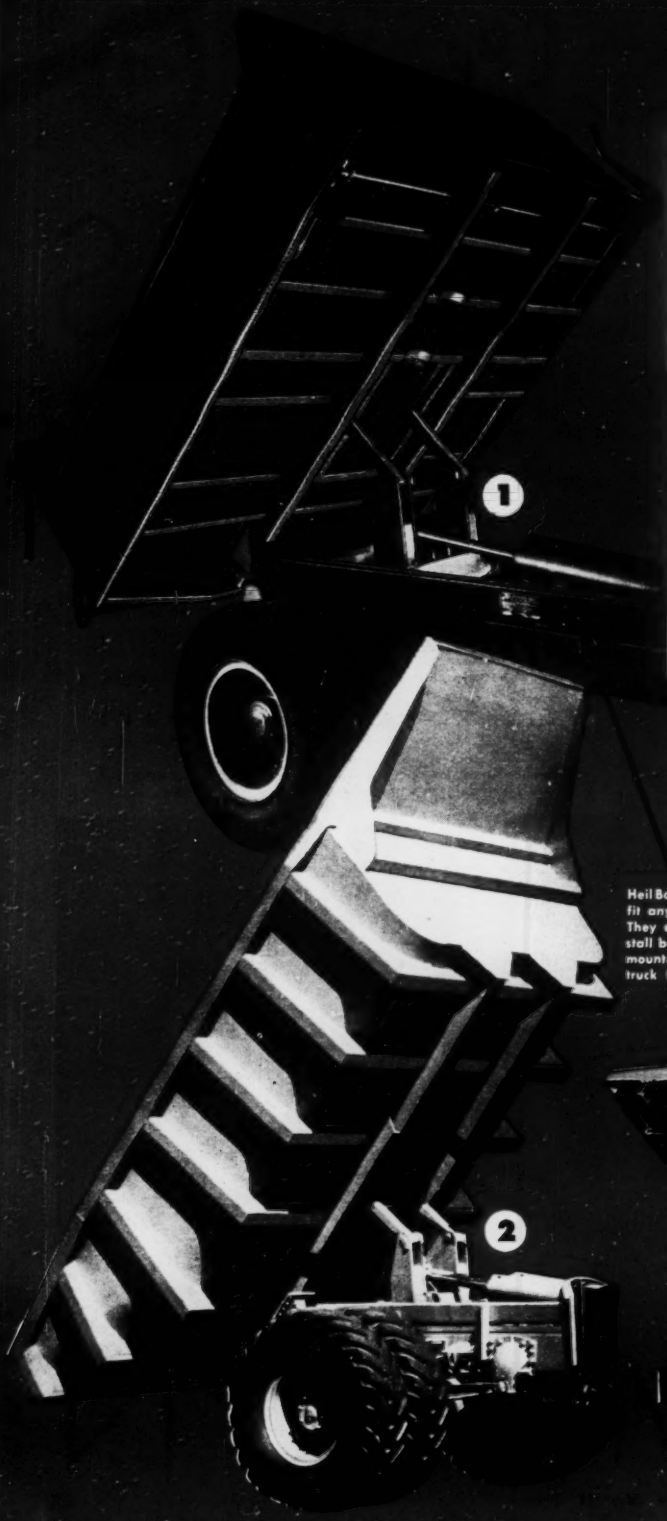
ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Two of nine Mahon Rolling Steel Doors installed in a new plant for Production Steel Company, Detroit, Mich. Barton-Marlow Co., General Contractors.

MAHON

Heil





Heil Bodies and Hoists fit any truck chassis. They are easy to install because they are mounted above the truck frame.

1. Heil's standard contractors body has V-section side braces that provide substantial support and prevent tailgate spreading.

2. Heil's heavy-duty rock body is designed for off-the-highway operations. 70° dumping angle gives you fast, clean discharge.

3. The Heiloader hydraulically-operated truck tailgate handles a capacity load of 2000 lbs. Use it to save time and money.

4. Heil's platform conversion hoists fit all trucks. They give you the low easy-loading feature of a straight platform truck and the convenience of hydraulic dumping.

Bodies and Hoists

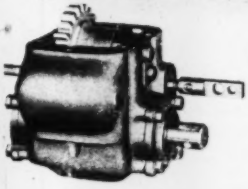
assure less downtime..because:

1. HEIL Bodies use both cross members and long members of the subframe for support, giving you extra strength and longer life.

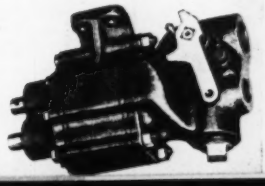
2. HEIL Hydraulic Hoists are so reliable that you never have to replace a piston due to wear.

More days on the job, lower maintenance and repair expense mean *lower hauling costs* with Heil Bodies and Hoists. These money-saving dump units are built to stand up under heavy punishment—to stay on the job and get results. For full information on Heil Bodies and Hoists and Heil's complete line of earthmoving equipment, send in coupon below, today.

HEIL



Heil Power Take-offs are sturdy and compact. There's a size and capacity for every make of truck transmission.



There are only two wearing parts in a Heil oil-gear pump — and they are reversible and easily replaced.

THE HEIL CO.
Dept. 159
3001 W. Montana Street, Milwaukee 1, Wisconsin

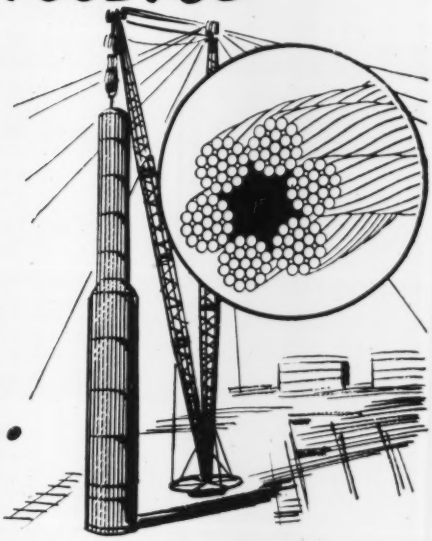
Please send me complete information on the items I have checked below:

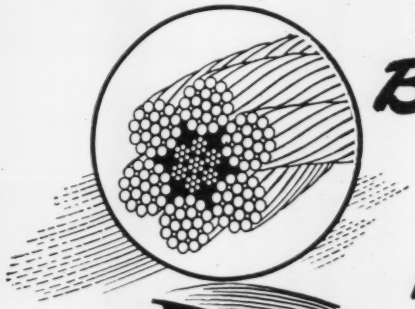
- ☐ **Heiliner**—2-wheel prime mover
- ☐ **Scrapers**—tractor-drawn
- ☐ **Hydraulic Dozers**—specify make of tractor
- ☐ **Cable Dozers**—specify make of tractor
- ☐ **Power Control Units**
- ☐ **Light-Duty Dump Bodies** —specify make of truck
- ☐ **Heavy-Duty Dump Bodies** —specify make of truck
- ☐ **Platform Conversion Hoist**

Name ..... Title .....
Company .....
Address .....
City ..... ( ) State .....

SOME ROPES FOOL YOU

U-W 6×19 FILLER WIRE CABLE WITH HEMP CENTER IS OK FOR TACKLE BLOCK FALLS BECAUSE IT IS SUFFICIENTLY FLEXIBLE AND FATIGUE RESISTANT





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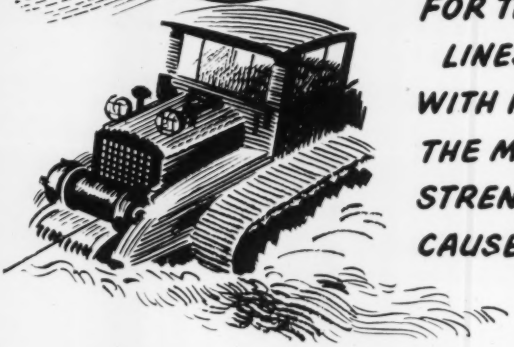

FOR TRUCK AND TRACTOR WINCH LINES U-W 6×19 FILLER WIRE WITH I.W.R.C. IS BETTER BECAUSE THE METALLIC CENTER ADDS MORE STRENGTH AND RESISTS CRUSHING CAUSED BY DRUM CROSS WINDING

For longest and best service, always specify
U-W LAYRITE (*Preformed*) IMPROVED PLOW STEEL

UPSON-WALTON IS THE ONLY MANUFACTURER OF ALL 4•••
Wire Rope, Tackle Blocks, Wire Rope Fittings, Brattice Cloth.
We invite you to let us engineer your problem jobs.

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THE UPSON-WALTON COMPANY

Manufacturers of Wire Rope, Wire Rope Fittings, Tackle Blocks, Brattice Cloth

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TRAXCAVATORS Give You MORE of Everything

MORE WORK . . . MORE UTILITY . . . MORE PROFITS

You get more for your equipment dollar with TRAXCAVATORS doing all your digging, loading, carrying and grading work — they have the extra stamina and speed that gets more work done in less time and produces more profits on more jobs. Whether they're excavating basements, grading housing sites or loading trucks with bulk material, TRAXCAVATORS give you maximum efficiency and unlimited versatility at all times — the ability to handle any assignment under the toughest conditions.

TRAXCAVATORS are built in sizes to fit every job and purpose — with bucket capacities from ½ to 2½ cubic yards. Every TRAXCAVATOR is engineered to match the power and speed of the rugged "Caterpillar" track-type tractor on which it's mounted. Bulldozer Blade and ANGLEGRADER attachments are also available to further increase TRAXCAVATOR's usefulness. Call on your TRACKSON-"Caterpillar" dealer for complete details or write to the TRACKSON COMPANY, Dept. EN-59, Milwaukee 1, Wis.

TRAXCAVATOR

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The Original Tractor Excavator

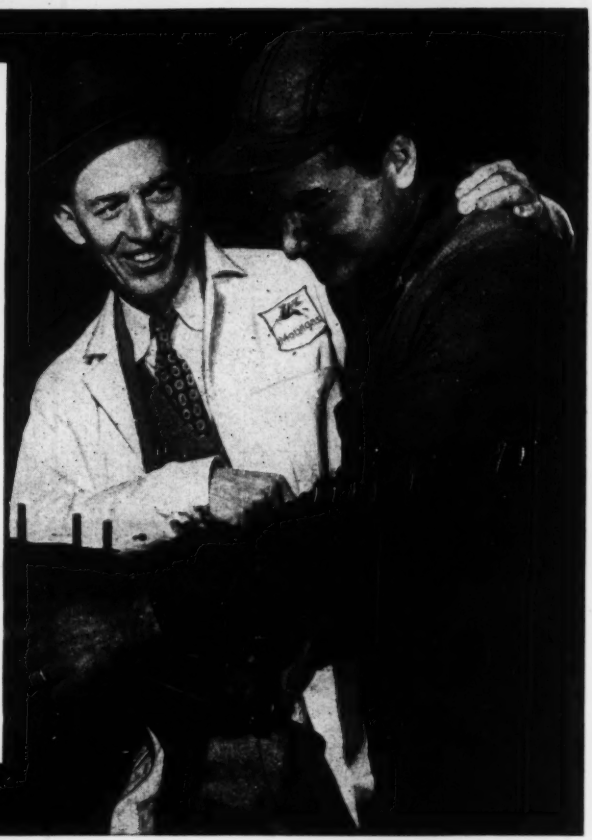
This Proved Program Offers Safe

1

CORRECT LUBRICATION

for every part of every machine you operate!

To help you cut "down-time"—keep hard-pusned machines operating full-tilt, full-time – Socony-Vacuum offers: technically correct oils and greases for *all* types of excavating and earth-moving equipment, tractors, power tools...oils made to help keep Diesel and gasoline engines cleaner, freer of deposits...top-quality gear and bearing lubricants that guard against excessive heat, friction and wear. Call in Socony-Vacuum today for full details.



Shortcuts to Bigger Job Profits!

● Here are just a few ways we help you ease tight work schedules, meet and beat contract deadlines:

1. Supply you with tested maintenance schedules adapted to *your* equipment, *your* set-up.
2. Give you practical help on "problem" machines.
3. Provide information on the Do's and Don't's of Correct Lubrication.
4. Supply the requirements for oils and greases for all of your equipment.
5. Help simplify lubricant inventory problems.

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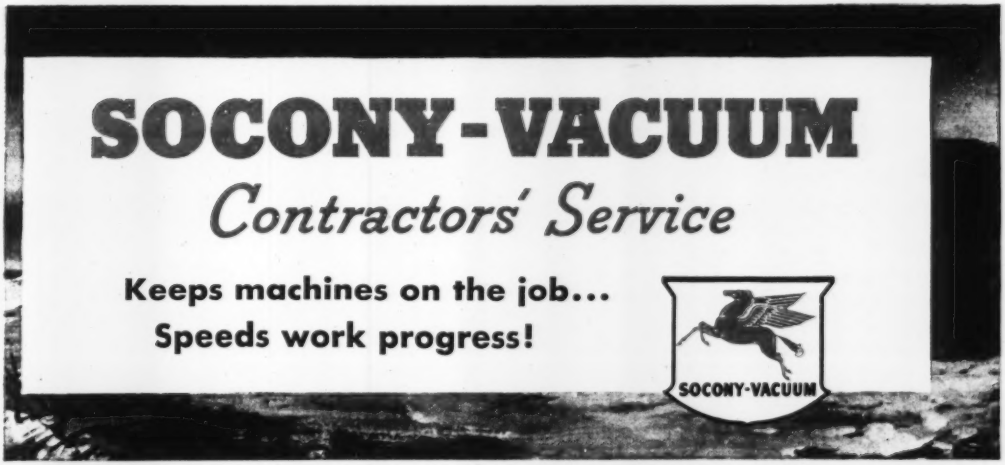
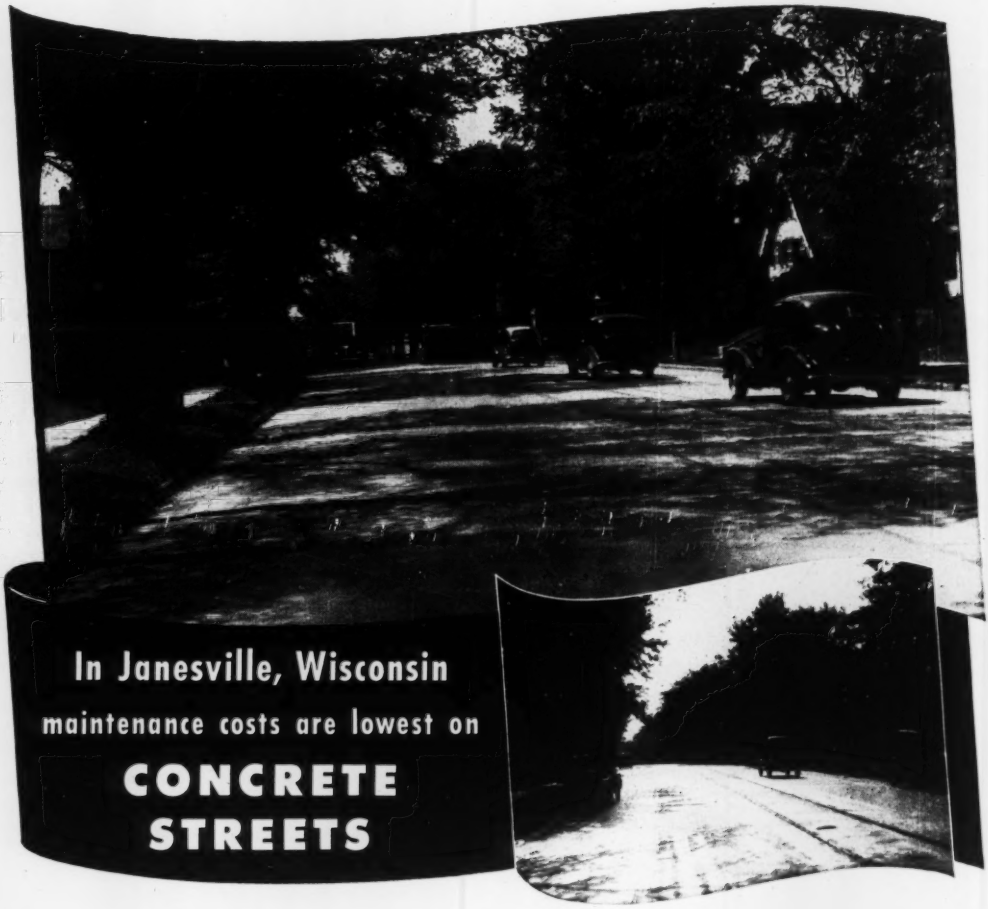
On the job, in the shop and in the office...all through your operation, this service saves time! See your nearest Socony-Vacuum Representative today for full details.

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION





In Janesville, Wisconsin maintenance costs are lowest on CONCRETE STREETS

ACCORDING TO LATEST available figures, covering ten consecutive years, it costs only $32.00 per mile per year to maintain the concrete streets in Janesville, Wisconsin. The average annual maintenance cost per mile for the three other types of pavement ranged from $106.33 to $170.74—four to six times as much as concrete pavements!

In the words of City Manager Henry Traxler, "The low cost of maintaining our concrete streets is especially significant because most of the heavy local and arterial traffic travels over our concrete streets. Also, since concrete streets are less frequently closed for repairs, we very seldom need to inconvenience drivers by re-routing traffic."

The experience of Janesville with the outstanding service and economy of concrete streets is repeated in hundreds of communities across the nation. Concrete, which usually costs less to build than other pavements of equal load-carrying capacity, also costs far less to maintain and it lasts much longer. That results in ***low annual cost,*** the real measure of pavement economy.

If you would like more information about this ***low-annual-cost*** pavement, write for helpful free booklet, *"Design of Concrete Pavements for Municipal Streets."* Distributed only in the U. S. and Canada.

Upper photo: recent view of Milton Avenue, part of State Route 26, built in 1924. Lower photo: same street in 1926.

PORTLAND CEMENT ASSOCIATION

DEPT. A5b-17, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

are you being taken for a buggy ride?

Is the high cost of materials and labor clouding your profit picture . . . endangering your customer relations?

To cost-conscious contractors and engineers, Rex Pumpcrete . . . *the pump that pumps concrete through a pipe line* . . . provides a proved way to substantially reduce costs!

For example! Think of the costs involved in buggying concrete! Figure the savings to be gained when you can eliminate the buggy run and deliver concrete through a pipe line right to the point of replacement.

Then! Figure how much you could cut your bids if you could be assured the fastest, most advantageous form and steel setting sequence . . . if you could achieve a closer coordination between the trades (carpenters, steel setters, concrete crews) and reduce interference with these interlocking activities.

Because Pumpcrete makes these advantages possible through steady pumping instead of the usual occasional pour, you can cut days off your schedule . . . and that means money in your pocket!

Add to these cost-cutting advantages, the fact that Pumpcrete transports concrete through a pipe line on one or more levels . . . elevates or lowers and distributes concrete in ONE operation. Thus, you can eliminate the expense of road building and maintenance . . . trestling and scaffolding . . . towers and many other items of preparatory work that add materially to construction costs.

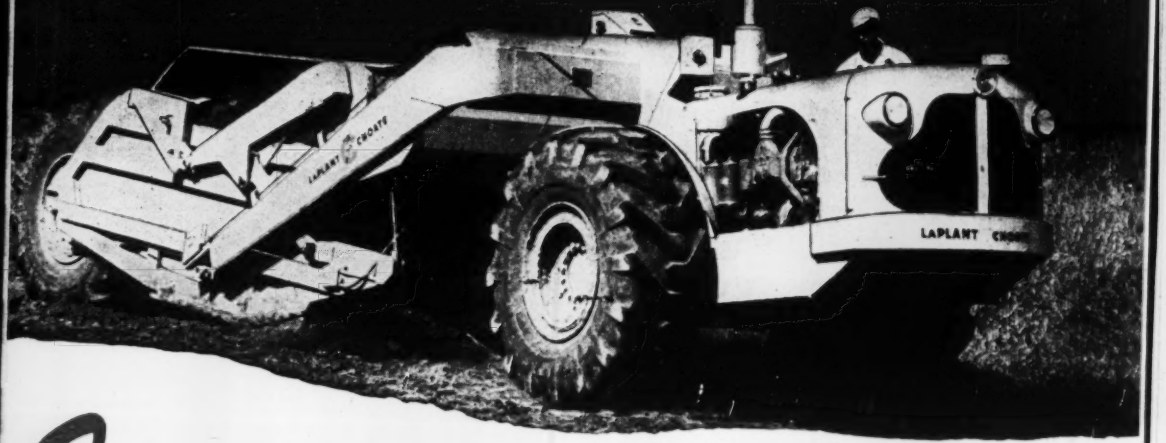
If you want to avoid being taken for a "buggy ride," talk to your Rex Distributor before you bid. He can show you how you can cut costs . . . improve concrete quality . . . make more money with "concrete by pipe line." If you prefer, write direct for free copies of informative Bulletins on Pumpcrete economy. Address Chain Belt Company, 1633 West Bruce Street, Milwaukee 4, Wis.

REMEMBER, Pumpcrete can now be rented from your Rex Distributor so you can prove the economy of pipe line placement for yourself at low cost!

CONSTRUCTION MACHINERY

LAPLANT-CHOATE

GOOD BEFORE



Improved

FOR INCREASED PRODUCTION

A few of the new features that cut down-time and increase hourly earnings

- NEW Heavy Duty Constant Mesh Transmission
- NEW 32-amp. Generator
- NEW 12 cu. ft. Piston Type Compressor
- NEW and Improved CCU and Controls
- NEW Water Pump and NEW Cast Type Radiator for More Efficient Cooling
- NEW Simplified Starting System—dash controlled

PLUS all these original high production features

- Big Capacity—17½ yards heaped
- Big Power—225 H.P. Diesel—16 H.P. per struck yard capacity
- Big Brakes—22" x 7" 4-wheel—air
- Positive Hydraulic Steering—Double Acting
- High Speed—up to 19.25 m.p.h.
- Easy Loading—curved bowl bottom—offset cutting edges
- Positive Forced Ejection plus high apron lift

6, 8 and 14-yd. cable scrapers for any make of track type tractor.

2 and 4-yd. hydraulic scrapers for track type tractors.

2 and 4-yd. hydraulic scrapers for industrial rubber-tired tractors.

LaPLANT CHOATE

MOTOR SCRAPERS
BETTER NOW

and lower operating and maintenance costs

Now you can have an even better LPC Motor Scraper, improved at every point so you can be sure it will stay on the job continually — complete your job on schedule — and assure good profits!

Increase production and profits — with the new transmission, you can use *all* of the 225 H.P. to handle capacity loads, at top speeds, up and down grades, even in tough operating conditions. Figure the added profit at your own bid prices of one additional load per hour over 10,000 hours of operation. The new 32-amp. generator provides all the "juice" needed for 'round the clock operation. Bigger air compressor for greater air output and more intermittent compressor operation. Improved cable control unit and controls save valuable seconds — give accurate spreading control.

24:00 x 29 24-ply traction type tires—interchangeable front and rear. 21:00 x 29 also available.

Add these and other new and improved features to the original proven high production features and you'll see why LaPlant-Choate Motor Scrapers give you the lowest possible cost per yard — per hour — per day for the long life of the unit.

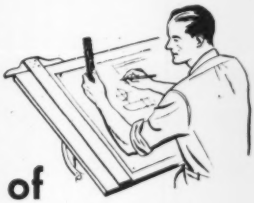
Ask your nearest LPC distributor to show you a Motor Scraper in operation and for the complete details of all the improvements which mean more profitable earthmoving for you. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa — 1022 77th Ave., Oakland, Calif.

HIGH SPEED EARTHMOVING EQUIPMENT

Architect's drawing of the new Portland Cement Association Research and Development Laboratory being constructed at Skokie, Ill. Carr and Wright, architects; Turner Construction Co., general contractors.

HI-BOND

used exclusively for new research laboratory of Portland Cement Association



In this new laboratory of the Portland Cement Association, the entire building, including exterior walls, will be constructed of reinforced concrete . . . with Inland HI-BOND reinforcing bars used throughout.

Once again HI-BOND was recognized to be a better reinforcing bar because of its proven superior bonding strength, due to closely spaced, deeply corrugated, reversed helical ribs. This unique design improves the transfer of stresses between steel and concrete, making possible more economical, better-looking, longer-lasting structures.

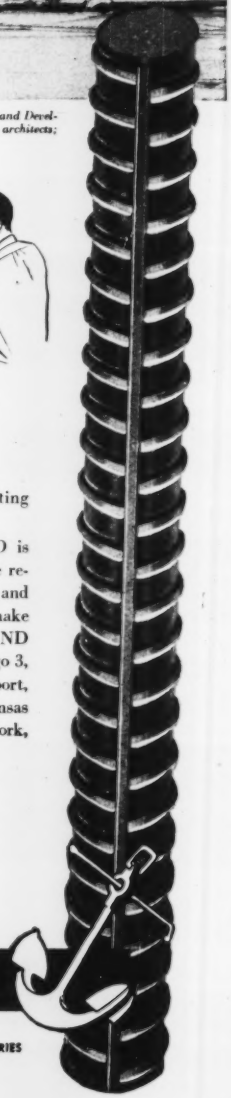
While current demand for HI-BOND is still strong, we are striving to satisfy the requirements of the construction industry, and have licensed other steel companies to make this superior bar. Write for bulletin. INLAND STEEL CO., 38 S. Dearborn St., Chicago 3, Illinois. Sales Offices: Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND STEEL

INLAND HI-BOND

Reg. U. S. Pat. Off.

The Reinforcing Bar with the "BUILT-IN" ANCHORAGE!



OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP • TIN PLATE • FLOOR PLATE • PILING • RAILS • TRACK ACCESSORIES

CONSTRUCTION TRENDS

Recession Fears Recede

Business in general is not moving into a recession—and will not this summer—it is now clear. Prospects for construction, moreover, are brightening.

Through the winter, fears and forecasts of a serious drop in business were widely accepted. But the course of business now shows that if this is a recession, it's the richest recession the U. S. has seen.

True, the steam is still hissing slowly out of the post-war super-boom. But 1949 promises to be a year of good business with general high activity—even though some lines sag and buyer's markets generally put business to the test.

Here are the key facts that show this is no recession:

1. Unemployment, which rose seasonally during the winter to a high of almost 3,250,000 in February, is now receding—as ENGINEERING NEWS-RECORD suggested it would. The falling-off in the number of people seeking unemployment compensation indicates that unemployment is now probably under 3,000,000.

2. Retail sales in April and March probably came close to equalling 1948's dollar volume in the same months. Because prices are off, that means physical volume of sales actually ran ahead of last year.

3. Key heavy industries—notably autos and steel—are still working against backlogs, and current orders indicate continuing high production.

That business has been easing off slowly is shown in the fact that people's incomes are down about 2 percent from last fall's peaks. Employment is off about 1 percent, industrial production is down 3 percent or more. Wholesale prices are generally off about 5 percent and continue to ease downward.

This summer will see construction and farming at their seasonal peaks. Manufacturing production will ease off, however, as workers take vacations. Unemployment will rise, too, probably as youngsters out of school hunt jobs. But business clearly has enough momentum to carry it through the summer in high.

So the key question is: What's going to happen to business after Labor Day?

The answer to that is being shaped by Congress right now. How Congress acts on such key questions as foreign aid appropriations, military spending, the farm program, and taxes will have a major effect on business. In fact, there's a huge gap between the extremes of proposals for spending and taxes. The weight of the federal budget on business can vary by almost $10 billion, depending on what combination of spending and taxes Congress chooses. On the military, for example, one group wants spending held to $15 billion—and any arms-for-Europe taken out of that $15 billion. But the House has already passed a military appropriation bill of almost $16 billion and is considering a lend-lease proposal of more than $1 billion.

What Congress does can make the difference between a federal budget surplus of a couple of billions next year—or a deficit of a couple of billion. And that's enough to make an important change in the course of business.

Whether taxes are raised or not will directly affect construction's prospects for next fall and winter, for example. Business this year is expected to spend more than $18 billion for new plants and equipment—of which almost a third will go for construction.

Profits are supplying the biggest part of those construction funds. And even now business generally is looking for declining earnings later in 1949 because prices are easing generally and volume is off in some lines. If higher taxes on business are coupled with that decline, the result could be a major setback to industrial construction.

The time for decision on business prospects for the second half of 1949 will come about mid-year when Washington provides key answers.

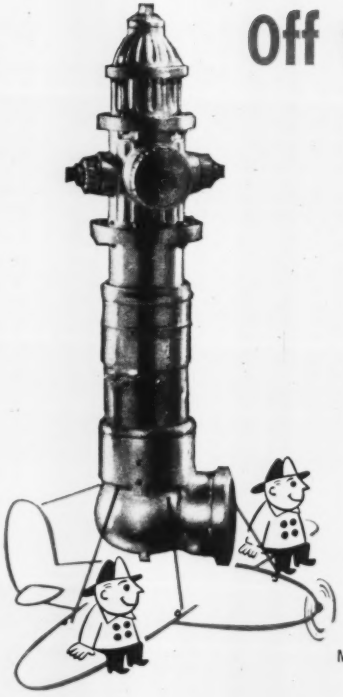
Construction's prospects meanwhile are brighter than the experts thought at the first of the year.

Prices of key materials are off 3% to 20% since the first of the year—and each week sees more cuts. These cuts haven't yet affected the overall indexes of construction costs by more than a few percent—partially because labor costs—wages and fringe benefits—are steadily, although slowly, climbing.

On the other hand, contractors seem to be passing their savings on to customers directly and quickly. Greatest difference, as yet, is in the fact that stable prices have sharply reduced contingency allowances—and as a result job estimates have been cut as much as 15% on some heavy construction.

Although it is still too early to estimate prospects for the second half with precision, the chances are good that the physical volume of construction as a whole will shade 1948's record. And heavy construction seems sure to set new records by a fair margin.

Off to Operation "CHICAGO"



WESTWARD AGAIN for R. D. Wood people and the Mathews Modernized Hydrant; but this time it is Chicago.

As at past A.W.W.A. conferences, we will have a full-scale working model of the hydrant on display. Many of the delegates are probably familiar with this product; and so far as they are concerned much of our time no doubt will be given over to meeting old friends and discussing matters of common interest. We look forward to it with great pleasure.

As for those of you who have never seen the Mathews, we hope to meet every one of you, too. Stop by and let us show you why it is so often said that cities protected by Mathews Modernized Hydrants are the safest.

MATHEWS HYDRANTS

***Made by* R. D. WOOD COMPANY**

Public Ledger Bldg., Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

THE CONSTRUCTION WEEK

ECA ON LUMBER—The Economic Cooperation Administration has issued a statement of its new policy on purchases of lumber and plywood. ECA henceforth will request all participating countries desiring to purchase lumber or lumber products for dollars to offer the U. S. lumber industry an opportunity to compete for the business. Before writing a procurement authorization—where the requested area of source is other than the United States—ECA will find out: (1) what it is they intend to purchase; (2) why any other country, instead of the United States is named as the source; (3) whether definite specifications were furnished bidders; (4) whether firm bids were requested and obtained from the U. S. lumber industry; and (5) any other pertinent information deemed necessary.

PAYDAYS WITHOUT PAY — Because Senate-House conferees have failed to agree on details of the first deficiency appropriation bill for fiscal '49, payless paydays loom for thousands more of federal employees. Already the staff of the Federal Housing Administration is working away without cash payments. Disagreements on reclamation personnel and White House rebuilding have deadlocked the conferees. The House version of the bill killed the Straus-Boke rider—devised by last year's 80th Congress—that stopped the pay of these two non-engineer reclamation officials Jan. 31; the Senate retained the restrictive engineer qualification in its measure.

SHORT-WAVE POOL—The Federal Communications Commission last week finally got around to issuing a ruling for general mobile radio services, lumping short-wave radio operations of electric, gas, water and steam utilities into a new Power Utilities Radio Service. Effective July 1, the ruling assigns 42 frequencies in three bands; pipeline radio communications (petroleum) not included in the ruling, will continue to operate under their present federal licenses until modification or expiration.

ATOM LABOR CONTROL—It became apparent last week that the newly-established "Atomic Energy Labor Relations Panel", headed by William H. Davis, will intervene in disputes that might tie up suppliers of materials or energy to the Atomic Energy Commission. While the panel will concern itself chiefly with contractors operating government-owned installations for AEC, the agency said in a statement to the Congressional atomic energy committee that "A strike or threat of a strike against supplies, that would result in a stoppage (of AEC plants) would imperil the national safety to the same extent as if the stoppage had occurred directly at an AEC installation."

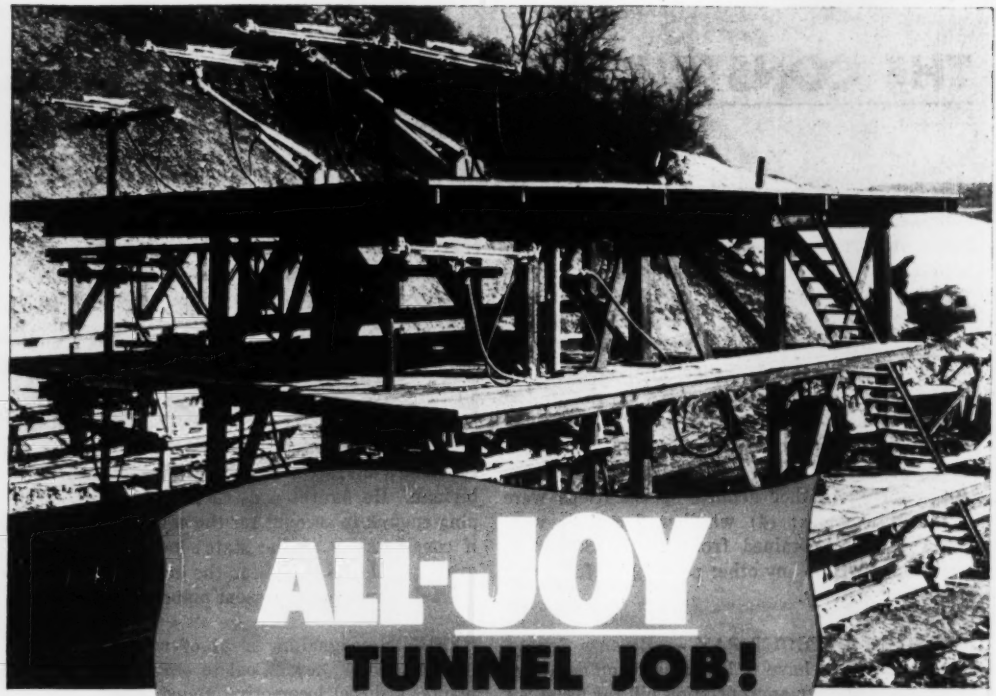
VIRTUE IN LATENESS—California's state legislature—far behind last year's bills passed but far ahead in bills introduced—is saving taxpayers $100,000 a day, according to one Republican assemblyman. He figures construction costs are dropping enough to account for the saving, hinted that if consideration of the state's public works program is held up until near the end of the session, a drastic revision in present plans will result.

RESULTS—Signalling start of work of the Bureau of Mines' new "Coal to Oil" demonstration plants, a diesel locomotive glided into Louisiana, Mo., last week, operating on fuel oil made from coal. The fuel for the train has already been tested at the Burlington Railroad shops at Aurora, Ill. Bureau of Mines hopes its planned $15,000,000 installation in the small Missouri town will do much to relieve worry about dwindling U. S. oil reserves.

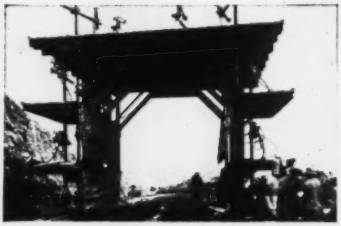
BIG STEEL PRODUCTS—Pushing to meet the continuing demand for steel, U. S. producers in the first quarter of 1949 turned out 24,053,181 tons of steel ingots and castings—a record for any quarter in history and 2,000,000 tons over the first quarter of 1948. Pushing their production records further, steelmen reported that in twelve months ending March 31, 1949, they turned out 90,566,000 tons—a top for any year, war or peace.

NATIONAL TURNPIKE?—A meeting of Pennsylvania and New Jersey Turnpike commissioners at Harrisburg brought a boost for a national turnpike. Paul Troast, New Jersey chairman, pointed out the work his state and Ohio are doing to connect turnpikes with Pennsylvania's system.

SHASTA ADDS A UNIT—Shasta dam's power-generating facilities reached full capacity recently when the fifth 75,000-kw. generator went on the line. The latest unit—last of the project's main generators—gives the hydroelectric plant a rated capacity of 379,000 kw.



ALL-JOY TUNNEL JOB!



16-drill jumbo, with 2 hydro drill jibs on top, bottoms 114 holes at 8 ft. in 90 minutes.

With the South Tunnel in 200', the North Tunnel jumbo is readied for the first round.

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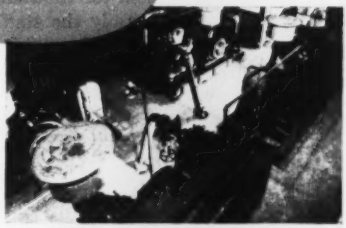
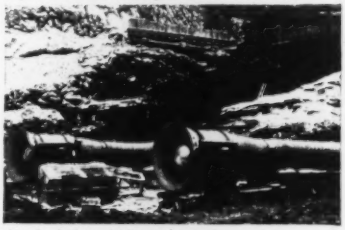


Four WN-102 Compressors, each delivering 723 CFM at 100 psi, serve the drills.



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More Money For Roads

THE NEED FOR MONEY with which to match federal-aid funds for arterial highways becomes continually more urgent. For cities particularly, per-mile costs of such roads are so great that municipal governments can only afford to build them piecemeal, thus postponing indefinitely the day when the new facility will be helping to relieve traffic congestion. Many states, too, are in a similar predicament with respect to costly superhighways. And while a few states could use larger federal-aid allotments, others are having difficulty in matching presently available federal funds.

Under these circumstances, an increase in federal-aid authorizations does not appear to be the entire answer to the question of how to get much-needed highways built quickly. That is probably the principal reason why increases in gasoline taxes are proposed in 23 states. It should be the sole reason because diversion of highway taxes to other purposes at this particular time would be short sighted in the extreme. Higher tax incomes will permit the states to do more work in the federal fiscal years, 1950 and '51, and will put them in a better position to use increased federal aid later if Congress should vote it.

Proposals to increase taxes, however, always raise question as to whether the point of diminishing returns may not be reached: when gasoline consumption would be so curtailed as to reduce rather than increase tax revenue. A study of that question recently completed by E. M. Cope and L. L. Liston of the Public Roads Administration, published in the March issue of PUBLIC ROADS, shows clearly, however, that no such result needs to be anticipated. Increases in gasoline taxes made in most of the states in recent years had no effect on gasoline consumption.

The main issues to be considered in each state contemplating tax increases, therefore, are whether the road program that added tax money will make possible has been adequately planned, and if so, what increase in taxes is needed to carry out the work over varying periods of years. With this information, the people of the state can determine whether to tax themselves heavily for quick results or at lesser rates for a longer period.

Public Relations and Dirty Streams

SOME TIMELY ADVICE was given industrial management by General Motors' L. A. Danse at the recent meeting of the Interstate Commission on the Potomac River Basin. Without mincing words, he pointed out that industry has a selfish interest in keeping wastes out of streams. This interest lies in maintaining as well as generating favorable public opinion. The question then is: Can industry afford to neglect its ripe opportunities for reaping good will—an incalculable asset—by forestalling stream pollution through process-waste treatment prior to discharge?

Plus-or-minus handwriting is on the wall: Good will can follow industry-initiated remedial action; unfavorable publicity can arise if the action is taken only after compulsory rulings, which are now possible under strengthened state laws.

Better Railroad Transportation

THE American Railway Engineering Association, which has just celebrated its 50th anniversary, took for the theme of that celebration: "A Past of Achievement—A Future of Opportunity." There is ample evidence to demonstrate that the association can with pride characterize its past as a period of achievement. Organized just before the turn of the century when each railroad had its own specifications for everything from rails to bridge timbers, the association's work on standardization alone would justify such a claim. The resulting savings must total many millions of dollars.

In the field of research, the past record also is notable, especially in view of the limited funds the AREA had at its disposal until quite recent times. Its early studies of impact on bridges, and later the much more comprehensive studies of track stresses were projects of note. But the most spectacular and productive was the association's attack on the baffling and costly problem of rail failures, especially those resulting from transverse fissures. About twenty years ago, failures from this cause, in new as well as old rails, ran to many thousands annually. Now they are negligible.

As to the future, it can and should be a period with many opportunities for equally productive work. Despite the financial handicaps under which the railroads as a group are operating, the Association of American Railroads, of which the AREA now forms the Construction and Maintenance Division, has seen the wisdom of contributing liberally to research sponsored by the AREA. In the current program is a new and potentially productive study of impact and bridge stresses, and another on the deterioration of concrete structures. Still unexplored are many questions relating to the higher speeds at which trains now are operated, including studies of roadbed stabilization and of methods for building more permanent track.

The opportunities that appear to lie ahead for the AREA are limited only by the initiative and imagination of its members and the foresight of railroad management in providing funds for needed research.

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ENGINEERING NEWS-RECORD

MAY 12, 1949 VOL. 142 NO. 19

Federal aid to local roads opposed at Senate hearing

Head of Public Roads Administration cites problems raised by pending bills and recommends that Congress authorize a local-road study—Cites primary needs

Thomas H. MacDonald, head of the Public Roads Administration, appeared May 2 before the Senate Subcommittee on Roads to open arguments against federal aid for local rural roads, as proposed in two bills before the committee.

These two bills (S-1417 and S-244) are substantially identical except that S-244 authorizes appropriation of $100 million for aid to local road work in each fiscal year beginning July 1, 1950, whereas S-1417 would authorize appropriation of $150 million. The bills would authorize the PRA to deal directly with "local political subdivisions" and would require the setting up of a Rural Roads Division in the PRA. Standards for each state would be worked out by agreement between the local body and the state highway department.

Contrary to present policy

Mr. MacDonald stated that granting federal aid for local road work would be contrary to the present policy of concentrating on the primary system until it had been brought up to acceptable standards. A report on the interstate system, which he said is to be submitted to Congress within a few weeks at its request "will roughly shatter any complacency we may feel as to the adequacy of the roadways and bridges of our important highway routes."

Under the 1944 highway act, Mr. MacDonald added, a total of 384,430 miles of secondary roads had been selected up to April 1, 1949, for inclusion in the secondary federal-aid road system. Due to lack of engineers, administrative personnel and contractors, as well as lack of matching funds, the program of work on these roads is not going forward as fast as it could with available federal aid.

Mr. MacDonald expressed strong disapproval of the provisions in these bills that would make it necessary for the PRA to deal directly with the 18,000 local road agencies throughout this country instead of with a single agency in each state, as at present.

Very few of these local subdivisions have the engineering and administrative staff that would be required to supervise the construction and account for federal-aid funds. Mr. MacDonald said that he would prefer to see allocations proposed in the bills under consideration made directly to the states. However, before Congress acts, he suggested that Congress authorize a full study of questions raised by this legislation.

As an example, Mr. MacDonald cited the fact that the type of roads that would be mostly aided by these bills are not surfaced with relatively permanent materials, as are the primary roads.

The surfacing of these roads, unless constantly maintained and reconditioned, deteriorates rapidly. Hence he said: "the problem quickly reduces to the recurring annual cost of maintenance and reconstruction. It is definitely not the initial cost per mile that is determining" when Congress comes to estimate the cost of a local road aid program.

Labor curbs to be relaxed in new law

The Taft-Hartley curbs against jurisdictional disputes, secondary boycotts and the closed shop are due to be relaxed if Congress passes a new labor law.

This is evident from the concessions already offered by three Republican members of the Senate Labor Committee—Taft, Smith and Donnel—in their minority report on the Administration's Thomas Bill.

Another modification is also contained in the Republican-backed Wood bill. The House sent this bill back to committee in a dramatic strategic coup by the pro-labor Administration forces after it had gotten a favorable 217-203 vote.

The next move in Congress will come in a few weeks when the Senate takes up the Thomas bill. Taft will then offer amendments, or a substitute bill, which would retain 22 major parts of Taft-Hartley and make at least 28 changes.

Taft has worked closely with key Republicans like Ives and Morse. He has made some concessions to their viewpoints and is confident that he can put his amendments across with the aid of southern Democrats.

Here are the Taft amendments in which the construction industry is most interested:

Jurisdiction disputes—The National Labor Relations Board could still obtain an injunction, but this step would be optional, rather than mandatory. Investigation of jurisdictional disputes would no longer get priority. NLRB could name an arbitrator to decide these disputes.

Secondary boycotts—In these cases, too, the injunction would not be mandatory nor would they get priority treatment. Employees could boycott "struck work."

Closed shop—The closed shop ban would be relaxed to the extent that an employer could notify a union of a job opening and give it a chance to fill it. This approves the "hiring hall" principle.

Union shop—Union shop elections would be dropped. Also, unions could expel members and cause their discharge for being communists on engaging in strikes in violation of contract.

Featherbedding—The limited Taft-Hartley restriction on featherbedding would be dropped.

Non-communist affidavits – Like union officials, employers who wish to use NLRB would have to sign them.

The Wood bill would make the same changes as to jurisdictional disputes and secondary boycotts with this additional revision: The Taft-Hartley procedure under which NLRB decides jurisdictional disputes—Section 10 (K)—would be dropped.

The Taft amendments on closed shop, union shop and non-communist affidavits are also found in the Wood bill.

NEWS BRIEFS

Public Construction—Pennsylvania Department of Forests and Water has let contracts of $6,586,825 for SCHUYLKILL RIVER dredging . . . PHILADELPHIA is taking bids to complete the $2,800,000 Pier 80 South project . . . Indiana's board of public harbors and terminals is trying to get a new $11,645,000 public harbor on Lake Michigan at the mouth of BURNS WATERWAY in PORTER COUNTY . . . OHIO Welfare Dept. has asked the legislature for $49,700,532 in the next two years to build new institutions and repair old ones . . . N. Y. State architects and engineers are drawing up cost estimates and a general plan for a multi-million dollar state government center on a 400-acre tract just west of ALBANY . . . All bids on the Tecolote Tunnel, first unit of the Bureau of Reclamation's SANTA BARBARA, CALIF., water project, have been turned down. The Wunderlich Construction Co., Omaha, Neb., was low bidder with $5,482,865, said to be considerably higher than bureau engineers' estimates.

Water Supply and Sewers—In MINNEAPOLIS, MINN., there is under way an $8,000,000, 19.5-mile, 48-in. water main project . . . Annexation of Nepean Township to OTTAWA, ONT., will require construction of water services amounting to $3,000,000 and trunk sewers and other necessary projects of over $4,000,000 . . . A $36,000,000-gal. $2,700,000 filter unit at the White River purification plant of the INDIANAPOLIS WATER CO. will be started in June . . . JACKSONVILLE, FLA., is to issue $5,000,000 of revenue certificates for extensions and improvements to its water system.

Housing—The Darlington, a 14-story apartment building of 612 units, will be erected at a cost of $5,250,000 in ATLANTA, GA., by Long Construction Co. . . . Albany Block, Inc., ATLANTIC CITY, N. J., will build a $2,000,000 apartment house there . . . Last year Canada's Central Mortgage & Housing Corp. built 6,934 units as follows: NEW BRUNSWICK, 184; QUEBEC, 712; ONTARIO, 2,874; MANITOBA, 638; SASKATCHEWAN, 810; ALBERTA, 678; and BRITISH COLUMBIA, 1,038 . . . Plans for construction of twenty-five-story twin apartment buildings, with exterior facing of plate glass and steel, were announced for CHICAGO by Robert Hall McCormick—on Lake Shore Drive frontage at an estimated cost of $5,670,000 . . . Construction of 1,941 rental apartment units in 26 different projects to cost about $18,500,000 has been assured for CHICAGO through FHA financing . . . An "Economy Home" with a down payment of $90 and monthly carrying charges of $52 is being built by N. K. Winston Associates at EAST HEMPSTEAD, N. Y. This summer 305 houses to sell at $8,390 will be ready . . . N. Y. Life Insurance Co. plans to build $18,000,000 worth of housing units in the area of South Park Way, CHICAGO, and the Chicago Dwellings Assn. will erect a $3,000,000 housing project at 60th St. and Lanley Ave. . . . At GRAND PRAIRIE, TEX., work has started on 400 homes in the Vought Manor addition to sell at from $6,000 to $6,700 . . . Development of eastern FAIRFAX COUNTY, VA., with 5,000 homes on a 2,300-acre tract at SPRINGFIELD, will be hastened through water lines extension now under way.

Correction—Pacific Gas & Electric Co.'s record spending program—though large—is not $12,500,000 per week as reported in the May 5 issue, p. 2. That figure is the monthly rate of spending.

CONCRETE GOES DOWN at Mt. Morris Dam on the Genesee River in New York. This first bucket was poured just recently on the $20,000,000 flood control structure being built by the Corps of Engineers (ENR Nov. 4, p 2). (Wide World Photo)

N. J. plant to supply east coast with perlite

Construction of a plant at Linden, N. J., to supply the northeastern seaboard area with perlite—a lightweight aggregate—was announced last week by The Building Products Division of Great Lakes Carbon Corp., of New York City.

The plant, which will cost about $500,000, will have a capacity for "popping" 65 to 70 tons of perlite per day. In addition to kilns, there will be built a steel-frame, corrugated steel wall, 70 x 165-ft. processing building, with a 20 x 100-ft. leanto.

In the natural state, perlite is a siliceous, volcanic glass containing between two and five percent of water. It is found mostly in the western part of the U. S. When expanded by heating to a temperature of 1,900 deg. F., it develops four characteristics of significance from a construction viewpoint: 1. Low density 2. excellent insulating properties 3. good fireproofing qualities 4. no affinity for water. It has been used in buildings in plaster and concrete instead of sand and stone aggregates with a resulting reduction in dead weight.

Pressure blows out Chicago sewer bore

Sandhogs in a Chicago sewer tunnel narrowly escaped injury recently from a blowout in the heading. The tunnel, under 7 to 8 psi. of air, had run out of clay cover and the top of the face was in sand when the pressure let go, blowing a crater to the street above.

The accident occurred on the S. A. Healy Co. and Peter Kiewit Sons' Co.'s Contract Three section of the Sanitary District of Chicago's South Side Intercepting Sewer (ENR Nov. 11, 1948, p. 107).

An open-face tunnel 22 ft. high and 23 ft. wide was being driven through clay for an 18x18-ft. arch-type concrete sewer. Its bottom was 36 ft. below ground surface, giving it 14 ft. of cover. This had been 3 to 4 ft. of clay overlain with sand and a 9-in. asphaltic concrete pavement.

The bore was being advanced on two benches and a bottom drift, and the arch was supported by steel liner plates and 6-in., 20-lb. H-section steel ribs on 4-ft. centers. The clay cover thinned down, and arch rib spacing was decreased to 2 ft. A 6-ft. high top heading, or arch drift, had been advanced almost even with a water department valve man-hole and a catch basin for a combined sanitary and storm sewer. The face was about 1,000 ft. ahead of an emergency lock and 4,000 ft. from the main shaft.

Losing pressure

The shift had difficulty with sand runs. They were warned of possible trouble ahead when they began to lose air slowly and about 3 ft. of sand sloughed in at the face. Then the top of the face blew completely, spouting sand and disintegrated pavement into the street. The eruption carried away manhole and catch basin and left a 15-ft. dia. crater at the surface, tapering to 3 ft. at the heading.

Because the accident occurred at the change of the shift, only a few men were injured, and these only slightly. Most of the off-going gang was on its way to the shaft and the new crew had not fully arrived. Reports are that outrush of air was carrying one of the men up through the hole when a sandhog grabbed his legs and pulled him back into the tunnel unhurt.

The cause of the blowout has not yet been definitely determined. Some believe that escaping air may have pocketed beneath the pavement, which suddenly let go; others that the proximity of the manhole and catch basin was the main contributing factor.

The blowout should not seriously delay sewer construction. The contractors had intended to stop mining that night and advance the concreting, since they were nearing a previously-built junction chamber where the sewer changes to twin 13 by 13-ft. barrels to go under a railroad embankment. The arch is now being concreted up to the tunnel bench. The below hole is being sheeted, and will probably serve as a construction shaft while the bore is advanced in free air to reach undisturbed ground. How the junction chamber will be approached has not been determined.

Montreal plans $11 million tunnels under Lachine

Montreal, Canada, city officials said that they had completed negotiations prior to construction of two vehicular tunnels under the Lachine canal.

The city said that the Canadian Transport Department had approved construction of the $11,000,000 traffic arteries at St. Remi St. and Atwater Ave. Under terms of the agreement, the dominion government will pay two-thirds of the cost of the tunnels, the city one-third, and the city will take over and operate and pay maintenance costs of the tunnels.

Plans for the St. Remi project provide for two separate roadways 24½ ft. wide, with a vertical clearance of 14 ft. in the tunnel section and an 8 ft. sidewalk for pedestrians. The tunnel proper will be 485 ft. long.

Construction of the two arteries will provide easement for heavy traffic across the canal right-of-way.

Let contract to remove Buffalo sewer obstruction

The Merritt, Chapman & Scott Corp. of Cleveland has been awarded a contract for the delicate job of removing concrete around the Albany Street storm sewer in the Black Rock Channel, Buffalo.

The concrete was poured during construction of the sewer about 40 years ago, but is now deemed an obstruction to dredging operations in the channel started last year.

Several other contractors turned down the job on the ground that it was too difficult. The concrete extends several inches above the water depth set by the Army Engineers, and the Buffalo Sewer Authority has been ordered to remove it. The problem is to remove the obstruction without destroying the sewer.

According to Frederick W. Crane, general manager of the sewer authority, the contract calls for payment by the Authority of $37,500 when the job is finished. However, if the sewer is broken during the operation, the contract will be cancelled and the company will be paid only for expense it has incurred up to the time of break.

NEAR READY NOW—Chicago's State Street bridge, under construction since 1941, is near completion and will open to traffic about June 1. Work on the $3,000,000 double-leaf bascule over the Chicago River was suspended during the war. The structure, to be known as the Bataan-Corregidor Memorial Bridge, will accommodate six lanes of traffic. (Wide World Photo)

CAA cuts red tape to speed program

Pushing to get its red-tape bogged airport program under full steam, the Civil Aeronautics Administration last week detailed new moves to simplify application and engineering procedures.

Published in the May 10 issue of the Fedral Register, the new rulings were seen as Administrator DeLos W. Rentzel's answer to the continuing complaint that administrative details had deterred many smaller communities from going ahead with airport plans (ENR Jan. 6, p. 41).

Briefly, the new rulings do this for the sponsor:

1. Eliminate the requirement for certification of title to property based on a special title search.

2. Make a property map acceptable in place of the previously required survey map (which sponsors often could not furnish). This property map need not be prepared by an engineer or surveyor, but must be accompanied by a sponsor's certification of correctness, signed by an authorized attorney or official.

3. Require no special title search, but the sponsor must agree to take care of any overlooked encumbrance to the title that may turn up later.

(4) Make acceptable a mere layout for the proposed airport, rather than the previously required (and highly expensive) master plan.

To speed construction

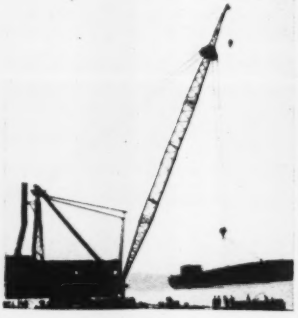
In the interest of speeding actual construction, once the necessary preliminaries have been completed, the rulings provide:

1. The sponsor is required to withhold only 10 percent—instead of 15 percent—of the value of completed work, when paying monthly estimates.

2. Negotiated contracts are allowed, if approved by the CAA regional office, for small jobs costing $2,000 or less. (Formerly the sponsor had to advertise all jobs and award them only on a competitive bid basis, requiring bid and performance bonds. Some of these provisions were contrary to local law.)

3. The sponsor is no longer required to prepare and submit to CAA an abstract of bids after a bid opening—a bid tabulation and recommendation for awards will be enough.

In general, the rulings move toward simplification, even eliminating the former requirement that the sponsor replace any buildings that might be destroyed by fire (many of the buildings were found not to have been necessary to the airports anyway); and providing that applications for additional improvements can be made on a simple one-page form.



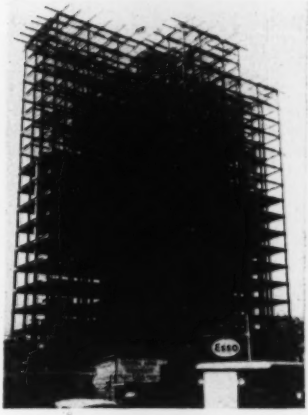
150-TON FLOATING CRANE has a 195-ft. boom. It is mounted on an all-welded steel barge, 300x90 ft. Wiley Manufacturing Co. built the crane to be used for exploration operations in the Gulf of Mexico.

CAA and military adopt slope line runway lights

The national military establishment most recently announced that the slope line system of airport runway approach lights has been adopted by the Army, Navy, Air Force and Civil Aeronautics Administration as the uniform standard for military and civil use.

In this system two converging lines of high-intensity, fixed-beam lights—at close intervals—are placed on two sides leading to the end of the runway, thus forming a "funnel" approach to the runway pavement. When the pilot is properly lined up on the glide path, the lights appear as two converging luminous lines. From a position other than on the glide path, one or both of the lines will appear in broken or echelon pattern, thereby giving a very definite indication of the correction necessary to return to the glide path.

Following studies at Arcata, Calif., lighting experts had recommended—to the Air Force-Navy-CAA subcommittee on visual aids to air navigation—that the slope line system be adopted as standard for civil and military use. The proposal to adopt this system as standard also was approved by the munitions board aircraft committee, consisting of representatives of the Army, Air Force, and Navy, and by the CAA.



TALLEST BUILDING in South Carolina is this 15-story apartment structure going up in Columbia. Congaree Construction Co., Lykesland, S. C., is the contractor, and Stork and Lyles are architects.

Labor field stays steady, few actions reported

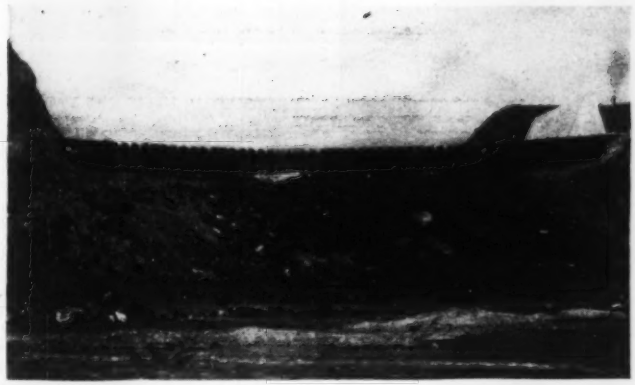
A continuing stability in the construction labor field (ENR, April 28, p. 36) continued to be apparent last week.

Reports of possible or probable strikes were widely scattered, and very nearly balanced reports of agreements.

On the agreement side, bricklayers unions in the New York metropolitan area signed a new one year agreement with the Building Contractors' and Mason Builders' Association, providing for no increase in pay. The agreement was reached six weeks before the expiration of the existing contract. Although the bricklayers were not a part of the general wage stabilization agreement negotiated last year, the new contract will strengthen the stabilization program which is binding on more than 90 percent of the 200,000 building mechanics in New York area. The new agreement calls for a seven-hour day, 35-hour week, and a basic wage of $3.20.

Another major labor stoppage that was ended was a labor strike in the area around Olean, N. Y., with laborers agreeing to a contract providing them a 15-cent hourly wage boost, to $1.15.

Meanwhile, at Columbia, Mo., a hint of a strike was apparent in idleness for some days of about 150 union carpenters, over a wage controversy, and there were indications that the incident—which the union described as a work stoppage rather than a strike—may precipitate a construction tie-up.



HORSESHOE FULL—The reservoir behind Horseshoe Dam across the Verde River in Central Arizona is full for the first time since construction in 1945. The $2,000,000 dam was built by Phelps Dodge Corp. for the federal government in exchange for water from Black River, a tributary of the Salt River. It was designed by Leeds, Hill and Jewett, of Los Angeles. Present reservoir capacity is 67,000 acre-ft. Addition of floodgates will increase this by 75,000 acre-ft. Contract for excavation and concrete work for the gates has been awarded Daley Construction Co., Phoenix, on a low bid of $465,140.

USBR to save $$$ on Hungry Horse Dam

Years of research in the Bureau of Reclamation's concrete laboratory at Denver, Colo., will pay off in a saving of $4,750,000 at Hungry Horse Dam, the world's fourth largest, now being built in northwestern Montana. The Boise, Idaho, regional office gave an account of the money-saving techniques recently.

Bureau engineers will make their first major use of pozzolan—a soot-like fly ash—in constructing the big dam. Some 30 to 40 percent of the cement for the 520-foot high structure will be replaced by the new material, at a saving of about $1,250,000.

An estimated additional saving of $3,500,000 will be effected through reduction in the net amount of cement. Bureau engineers may use as little as two sacks (½ bbl.) per cu. yd. of mass concrete, plus pozzolan.

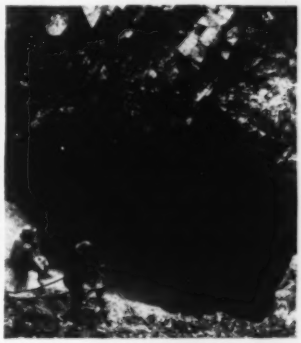
This will be the lowest cement content ever used by the bureau in a mass concrete dam. The lowest previous ratio was four sacks (1 bbl.) per cu. yd. at Grand Coulee.

Field and laboratory research has shown that better concrete and a better dam will result from the use of the new ratio and pozzolan, according to a report by Chief Engineer Leslie N. McClellan of the Denver office.

The pozzolan to be used is a waste product of combustion, obtained from the flues of coal-burning industrial furnaces in the Chicago area. Its cost delivered at the project is approximately $10 a ton less than cement. Substitution of a large quantity of pozzolan for cement will not only save money, but also help relieve the demand on the nation's critically short cement supply.

Advantages gained from use of the fly-ash—essentially a siliceous material—include increased concrete workability, decreased permeability, and less segregation and bleeding. More important, the use of pozzolan reduces the heat of hydration and attendant volume change; less artificial cooling is required.

First mass concrete for the Hungry Horse Dam will be placed in the late summer or early fall.



TRIMMING THE "GLORY HOLE"—Excavation nears completion as jackhammer operators trim rock from the spillway mouth at Hungry Horse Dam in Montana (ENR April 14, p. 58). The 35-ft. diameter, 955-ft. long spillway drops vertically 490 ft. Boyles Brothers Drilling Co. of Salt Lake City blasted the tunnel through solid rock under a sub-contract from General-Shea-Morrison Co., prime contractors for the Bureau of Reclamation.

$15 million Alaska jobs approved for award

Low bids totaling $15,249,540 for 13 military construction contracts at five locations in Alaska have been approved for award, Maj. Gen. Lewis A. Pick, chief of engineers, announced recently. These contracts complete the awards under the current $55,000,000 military construction program on the Alaska mainland. The program is being executed by lump sum contracts, with the Alaska district engineer at Anchorage making the awards.

These latest awards consist of family housing, utilities, barracks, power and heating plants, fuel facilities and miscellaneous items for both Army and Air Force installations.

Among the bids approved for acceptance are: (1) Fort Richardson—addition to central power plant, $1,331,225, and outside utilities, $1,588,584, Peter Kiewit Sons Co., and Morrison-Knudsen Co., Seattle, Wash.; (2) Ladd Air Force Base—outside utilities, two contracts, $2,260,500 and $1,718,500, B. & M. Construction Co., Oklahoma City, Okla.; power and heating plant, $3,090,000, Peter Kiewit Sons Co., Seattle; (3) Whittier—bulk fuel facilities, including wharf, pipe lines and tank farm, $2,017,825, Morrison-Knudsen Co., Seattle; (4) Eilson Air Force Base—airfield lighting, $703,000, Reed & Martin, Fairbanks; outside utilities, $662,400, Fred Wagar, Auburn, Wash.; outside utilities, $497,448, Selid Construction Co., Fairbanks; enlisted men's barracks, supply and day rooms, $738,985, S. Birch & Sons, Seattle.

Approve $9 million Texas flood control job

The Brown County Water Improvement District at Brownwood, Texas, has approved a flood control project by the Army Corps of Engineers at Lake Brownwood.

The engineers propose construction of a dam downstream from the present structure. Spillway structures 480 ft. wide would be installed, including gates 29 ft. high.

MEMPHIS BRIDGE TO SHINE—The new four-lane highway crossing of the Mississippi River at Memphis will outshine both the existing parallel structures. When completed next January it will sport a coat of aluminum paint. Harris Structural Steel Corp. hopes to complete its superstructure contract Nov. 1.

Political control threatens Missouri road commission

A legislative highway committee at Jefferson City, Mo., has recently approved by majority vote a reorganization plan for the state highway commission that was immediately attacked as a move to bring the commission under political control.

Under the bill approved by the committee the present four-member bipartisan commission, only one of whom was appointed by Governor Forrest Smith, would be replaced by an eight-member highway commission entirely appointed by the governor. This commission would appoint a chief engineer, an assistant chief engineer and bureau heads. The 3,500 employees of the department, below rank of bureau head, would be chosen by a politically appointed director.

At present the department is managed on a non-political basis, under the administration of a chief engineer appointed by the bipartisan commission. Under the proposed bill all administrative powers would be taken from the chief engineer and lodged in a director. The new bill would give the governor power to remove any commissioner without filing charges against him or granting a hearing.

The bill was immediately attacked by many organizations, including the St. Louis Post-Dispatch, which said of the measure in a story from its Jefferson City correspondent, "It is no exaggeration to consider the plan as the most daring and brazen exhibition of partisan politics in Missouri since the attempted governorship steal in 1941."

FOR MORE SIGHTSEERS—Observation platform at Buggs Island Dam had to be extended to accommodate visitors. High on the left bank of the Roanoke River, in southern Virginia, this gallery overlooks concrete-placement operations within the first-stage cofferdam. Concrete portion of the complete structure will be 2,785 ft. long and 144 ft. high.

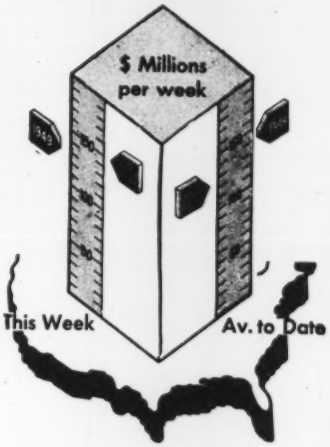
Merritt-Chapman & Scott names Cotter president

Completing a reorganization move under discussion for some months, directors of Merritt-Chapman & Scott Corp., New York heavy construction firm, last week named Rear Admiral Carl H. Cotter (ret.) as president.

Adm. Cotter, wartime deputy commander of Navy construction battalions and director of the Pacific and Western Pacific Divisions for the Navy Bureau of Yards and Docks, replaces F. E. Lyford as president. Thomas A. Scott, founder of the firm, remains as chairman of the board.

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	May '49	472.10	226.94
Building Cost	May '49	348.92	188.62
Volume	Apr. '49	268	118



Activity This Week

As reported to ENR (in millions of dollars)

Amount of Contracts let

	Week of May 12 1949	Cumulative 1949 (19 wks.)	Cumulative 1948 (20 wks.)	% chge av.wk.
Federal	$10.0	$393.8	$439.2	−6
State & Mun.	63.1	997.7	848.9	+24
Total Public	$73.1	$1,391.5	$1,288.1	+14
Total Private	57.9	1,330.9	1,176.3	+19
U. S. Total	$131.0	$2,722.4	$2,464.4	+16

Contracts by type of work

	This Week	Cumulative 1949 (19 wks.)	Cumulative 1948 (20 wks.)	% chge av.wk.
Waterworks	$5.2	$59.7	$64.0	−2
Sewerage	10.1	85.6	79.3	+14
Bridges	5.7	118.7	106.3	+18
Highways	23.2	240.9	333.5	−24
Earthwork, Waterways	6.2	228.1	221.8	+9
Buildings, Public	18.9	568.6	399.7	+57
Industrial	14.9	364.5	369.2	+4
Commercial	39.7	851.3	716.9	+25
Unclassified	7.0	206.0	173.6	+24

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (19 wks.)	Cumulative 1948 (20 wks.)	% chge av.wk.
NON-FEDERAL	$2,160.6	$1,397.9	+63
Corporate Securities	1,023.4	768.2	+40
State and Municipal	1,137.2	629.7	+90
Total Capital	$2,160.6	$1,397.9	+63

ENGINEERING SCHOOLS

Syracuse officially opens new $8 million campus

Syracuse University, Syracuse, N. Y., which has the ninth largest total enrollment among American universities, has about 1,900 engineering students. On April 27, for its Lyman C. Smith College of Applied Science (founded by Lyman C. Smith, pioneer typewriter manufacturer in 1901) it officially opened a new multi-million dollar engineering and research campus, covering 120 acres, and consisting of 32 buildings, nine of major size.

This group of modern buildings was originally erected by the United States government at a cost of more than $8,000,000. Some of the buildings, used by the General Electric Co. during the war for the manufacture of turbines and electronic equipment, have been rebuilt for the engineering school at a cost of about $1,000,000. The government had designated them as surplus property. Upon the occasion of the official opening, William D. Jones, regional director of the Federal Works Agency, turned over to Chancellor William P. Tolley for the university a deed representing $500,000 worth of improvements made on the campus by the federal government.

The main engineering building, about 800 ft. long, provides quarters for the administrative offices of the college under Dean Louis Mitchell and a large and able faculty, and for the departments of civil, chemical, electrical, mechanical and administrative engineering, and for photogrammetry and physics. Separate buildings house the departments of aeronautical engineering, materials engineering, and industrial design, with fully equipped laboratories.

Many of the research activities of the university are coordinated under the Institute of Industrial Research, which likewise has its office on the new campus. The institute not only initiates original research, but also investigates problems brought to it for solution by industries and governmental agencies, including the Department of the Navy. At present it is operating at a rate of about $500,000 a year, and this is expected to increase to several million dollars annually in a few years.

Charles F. Kettering, vice-president and research consultant of the General Motors Corp., who was among the several hundred representatives of eastern engineering schools and industries present at the official opening, emphasized the great value to all concerned of education cooperatively carried on by industries and engineering schools as so well exemplified by Syracuse University with its unusually complete new facilities for engineering instruction and research.

Faculty Items

Dean C. R. Young, head of the School of Practical Science, University of Toronto, Ont., will retire June 30. He was graduated from Toronto in 1903 and commenced his engineering career in 1907. Dean Young's successor will be Kenneth F. Tupper, formerly director of the engineering division of the atomic energy project at Chalk River. He is a graduate of the University of Toronto, 1929, and he has a master's degree in aeronautical engineering from the University of Michigan.

The appointment of Julius A. Stratton, formerly professor of physics and director of the research laboratory of electronics at Massachusetts Institute of Technology, as provost of the institute has been announced. He was graduated from the institute in 1923, received his master's degree in 1925, Doctor of Science from the Technische Hochschule, Zurich, 1927, and has been at M.I.T. since 1924.

George M. Slaughter is instructor in hydraulic engineering at Louisiana State University. He received his B.S. in C.E. from Illinois Tech. in 1945 and M.S. from Ohio State in 1947.

Italian engineers honored at New York

Gustavo Colonnetti, president of the Italian National Research Council and professor of structures at the University of Turin was the guest of honor at luncheon at the Engineers Club in New York, April 21, arranged by the Engineers Joint Council. Clarence E. Davies, secretary of the American Society of Mechanical Engineers presided, in the absence of R. E. Dougherty, president of the council, who was attending the ASCE meeting in Oklahoma City.

A second guest of honor was Harold V. Coes, retired member of the firm of Ford, Bacon and Davis, who goes to Paris in May as consultant to the Industry Division of the Economic Cooperation Administration. Provision for engineering advice of this kind has been recommended to ECA by Engineers Joint Council for some time.

Accompanying Mr. Colonnetti were Guiseppe Gabrielli, chief engineer of the Fiat works at Turin, and P. L. Romita of Milan, who has come for several months work in hydraulics at the Bureau of Standards.

Mr. Colonnetti spoke with much earnestness concerning the American aid to Italy and of the technical assistance received from engineers, adding that American engineers visiting Italy would be welcomed by his research agency and would be given all possible help in meeting any special needs.

The college of engineering at the University of California in Berkeley has established a cooperative program under which the student alternates academic and industrial work for six-month periods. Students spend the first and fifth years of their training at academic work, alternating study and industrial time in the three intermediate years. The program is at present limited to students of industrial engineering, but may be extended to other departments later.

Engineering Degrees

The Office of Education of the Federal Security Agency recently issued Circular No. 247, "Earned Degrees Conferred by Higher Educational Institutions, 1947-48". The figures on engineering degrees are:

	Bachelor's		Master's		Doctor's	
	Men	Women	Men	Women	Men	Women
Civil Engineering	4,390	20	598	2	32	0
Aeronautical Engineering	1,500	15	352	2	36	0
Chemical Engineering	3,599	62	900	0	72	0
Electrical Engineering	6,688	28	742	2	29	0
Mechanical Engineering	9,235	29	619	0	22	0
Other Engineering	5,493	37	978	3	66	0
TOTAL ENGINEERING	30,905	191	4,189	9	257	0

Some Lessons Learned About

Machine-Grouted Sewer-Pipe Joints

C. S. Seabrook
Sewer Engineer, Department of Public Works, Tacoma, Wash.

Editor's Note—A new process for jointing sewer pipe—now generally called "machine grouting"—was brought out about two years ago (ENR Jan. 9, 1947, p. 81). Interest in this process—as evidenced by the number of engineers who have traveled long distances to witness machine grouting of pipe joints and by mail inquiries about the process from many part of the world—warrants a discussion of machine-grouting technique and its development through use.

TWO YEAR'S EXPERIENCE with machine-grouted, sewer-pipe joints has resulted in on-the-job findings that indicate: Machine-grouted joints are more water-tight than hand-mortared connections; a large portion of infiltration into a sewer may result from pipe cracks and poor manhole construction; modification of bell design for concrete pipe permits spigots to be centered accurately; spigot ends supported on 6-in. wooden blocks do not cause pipe failures; machine-grouted joints may cost slightly more than hand-made ones; and effectiveness of construction operations depends upon job conditions and ingenuity with which the grouting machine is handled.

Joints are watertight

The question—"Is there more assurance of getting a tight joint with machine grouting than with conventional hand mortaring?"—is often asked. The answer is unequivocally "Yes": If ordinary care is used, the process will produce a joint that is absolutely tight against water, roots or any other action the pipe is normally expected to resist.

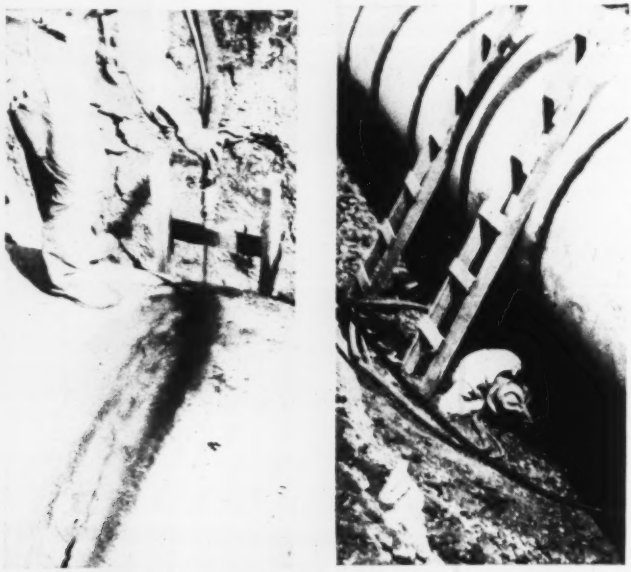
This is not to say that machine-grouted joints will automatically insure a watertight sewer line. Unfortunately, machine grouting is not a substitute for intelligence and normal care in construction.

When the first machine-grouting process job was started an absolutely watertight sewer was hoped for—despite a 10-ft. head of water over the sewer. This dream failed to materialize. Leakage was not excessive, but it was far more than anticipated. Careful investigation revealed that most of the infiltration was entering the line not through joints but other points. In one or two places faulty backfilling caused structural cracks. In some cases plugs in manhole stubs were mortared improperly. Several manholes, in spite of plastering both inside and out, had small leaks in walls.

Clearly, faulty joints are not the only sources of infiltration. But the achievement of perfect joints was required to focus attention on other weak points in the line.

Another recent experience worth mentioning is that with a short, ten-inch, low-head pumping line. Good results were expected—despite a new contractor and an untried inspector, and the writer did not give the job enough personal attention. After being put into operation, the pipeline had to be dug up in seven places to repair leaks—leaks at the joints this time. Conditions at each joint were identical. Mortar that should have been in the bottom of joints was on the barrel of adjacent pipes or on the ground. The nozzle man had not bothered to look where he was shooting and the inspector had not examined each joint upon completion.

These examples of faulty joints are intentionally emphasized as a warning against thoughtless condemnation of the machine-grouted jointing process. The process is as close to foolproof as anything could be, but, since human hands and minds are involved, some planning and careful construc-



MACHINE-GROUTING was employed at Great Falls, Montana to join sections of a 72-in. outfall sewer.

tion supervision are definitely indicated.

Construction problems

Two interesting "construction kinks" developed locally are worthy of mention. When machine grouting of small bell-and-spigot pipe was started, operators experienced two difficulties. First, the annular space, into which mortar must be injected, was limited; and second, the spigot end of pipes had to be blocked up in the adjacent bell, preparatory to mortaring.

E. L. Warner of the Harrison Pipe Co. of Tacoma solved these difficulties by modifying conventional bell design. A small self-centering shoulder (see drawing) in bell eliminates need for spigot blocking, and a 45-deg. bevel around the inside edge of the bell provides just enough additional annular space to insure a good job of mortaring. The modified bell is now a standard requirement in Tacoma whether or not machine grouting is used.

The second point of interest—and of considerable controversy—concerns the manner in which pipes are supported before mortaring. To dig bell holes large enough for convenient use of the grouting machine is impractical. Instead, the line is supported on wooden blocks about 6 in. high, one to each length of pipe.

This practice simplifies jointing, but the question—"what about the concentrated load on the pipe?"—immediately arises. The matter has been strongly argued pro and con for the past two years, but to date at least, we still adhere to our original contention that, if properly utilized, the method is sound. We attempt as nearly as possible to provide a support which will bear little more than the weight of the pipe itself without settling. After jointing, first-class backfill is carefully packed under the pipe. If the line is below the watertable, water will settle this material perfectly. If the trench is dry, material is tamped in by hand before backfilling.

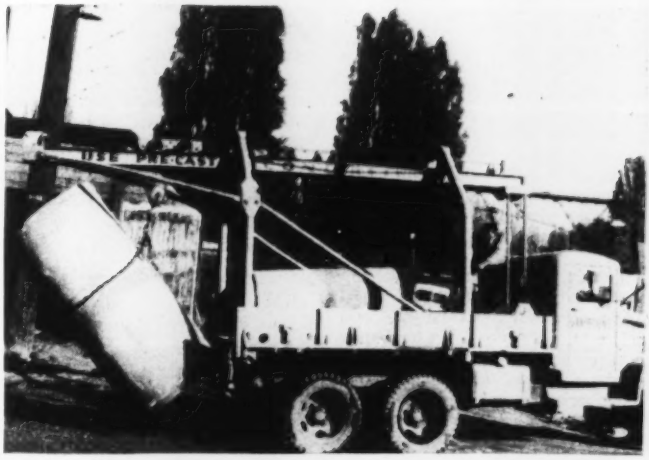
The theory is that under these conditions the trench load coming onto the pipe will produce a very slight settlement at the wooden supports, thus transferring load from blocks to bedding material beneath the pipe. This is a theoretical consideration and would be hard to prove without elaborate testing equipment. But to date, in all the lines that have been laid, no failures have been reported.

Costs vary widely

Because of the large number of inquiries regarding costs of machine-grouted joints, an attempt was made to accumulate cost data during the past two years. The attempt has been abandoned for two reasons. First, it is almost impossible to obtain worthwhile cost data from contractors. Second, an intelligent interpretation of such data would be difficult. Too many variables are involved.

For example, if unions required four men to operate the machine when two would suffice, the cost would go up in proportion. Costs would again mount, assuming that construction conditions were such that only half as much pipe could be laid as could be jointed in a day, and machine operators were not permitted to do any work while the machine was idle.

The subject of costs can be summed best by the comment of a Tacoma contractor who for a long time opposed



TWO FOUR-FT. SECTIONS of 36-in. T & G Concrete pipe—joined by machine grouting only 48-hr. old—were deliberately mishandled recently by the Graystone Concrete Products Co., Seattle, to test joint strength. The grouted-joint did not break.

SUMMARY OF PROJECTS USING MACHINE-GROUTED SEWER-PIPE JOINTS

Oklahoma City, Okla.
60-in. sewer line. Total cost—$3,000,000. Vacuum Process pipe used.

Union Gap, Wash.
54-in. Irrigation line. Total cost—$250,000. Line grouted during subfreezing weather. Suitable temperatures maintained by airplane heater inside pipe. Comparative cost figures: Six man-hours to make hand-mortared joint. 1½ man-hours to make machine grouted joint.

Spokane, Wash.
54-60 in. trunk sewer. Total cost—$100,000.

Junction City, Ore.
Small sewers. Total cost—$150,000. Three 3-ft. sections of pipe jointed on bank and the resulting nine-foot section then swung into place in the ditch. Machine grouting substituted for specified dry-packed joints.

Hood River, Ore.
Small sewers. Total cost—$150,000. Five 3-ft. sections of 12-in. pipe jointed on the bank in this case.

Great Falls, Mont.
78-in. trunk sewer. Total cost—$800,000. Air tamped bed and backfill. Pipe grouted both inside and out.

Coachella, Calif.
36-42-in. irrigation lines. Total cost—$3,000,000. 130 miles of pipe. Two machines mounted on one truck. One man operates both.

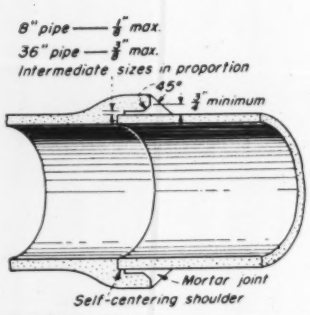
Seattle, Wash.
Average sewer systems. Total cost—$1,000,000 plus.

the machine-grouting process. After being compelled to use it by contract requirements, he said that, if he was not required to take the machine into certain inaccessible places and other operating conditions were normal, the process would be little if any more costly than hand mortaring. This statement, coming from a contractor who keeps accurate cost records, tells the story much better than anything else.

Frankly, it is difficult to work up too much interest in the cost angle. The process was conceived—not as a device to save money—but to provide better joints at reasonable cost. If the jointing method achieves this end, slight variations in cost—up or down—seem to be immaterial considerations.

Process is widely used

Since completion of the first sewer job in Tacoma, Wash. on which machine-grouted pipe joints were used, some 12 miles of trunk sewers costing about $675,000 have been constructed. A $500,000 system of sewer laterals on



SPIGOT ENDS of concrete pipe are centered by modified bell design that includes a small annular shoulder. The 45-deg. bevel facilitates injection of mortar.

which the new process will be used will go under contract this year.

Many other cities are profiting from the new jointing method. In the past two years, grouting machines have been used on big sewer jobs in many parts of the country. So far as is known no intance in which the process has not proved outstandingly satisfactory has been reported. Some important projects on which the process has been used are listed in the table.

Field operations

Many inquiries have been made regarding methods of transporting and using grouting equipment in the field. Various methods are used, reflecting the ingenuity of the individual contractor. In Oklahoma City, the mixer, a 400 gal. water tank and the compressor were all mounted on a half-track. Another contractor used a bomb trailer for the same purpose.

At Coachella, Calif., the tank and compressor equipment were mounted on a sled. Overhead mixers were used for fast filling. The sled was towed by the crane which handled pipe.

In Tacoma, Wash., where much of the work has been more or less confined, various field units have been moved along individually to suit local conditions.

Currently a very small model of the machine is being developed for use inside of relatively small pipe lines.

London Water Board Saves By Using Superchlorination

Substantial savings in contact time and money are being realized by the London, England, Metropolitan Water Board through superchlorination of filtered river water for domestic consumption.

The new procedure was adopted after experiments at a number of the board's river pumping stations and a report on the value of superchlorination by E. F. W. Mackenzie, director of water examination.

For many years the water board has used chloramine in pre-filtering applications as its principal treatment for river water.

However, laboratory tests that distinguish free chlorine from cloramine, and enable chlorine to be maintained at dosages for effective sterilization and precluding formation of tastes in filtered river water have been developed. As a result of these advances, it was decided early in 1947 to introduce superchlorination treatment on a plant scale.

Experiments were conducted at plants where, for the most part, contact time is only a few minutes and where considerable difficulty had been encountered in bringing the water to a satisfactory state of purity.

According to an article in THE ENGINEER, since the change, there has been a marked improvement in the bacterial quality of the water supplied, the percentage of purity having increased from 96.8 percent to 99.8 percent.

According to Mr. MacKenzie's report, so successful did superchlorination prove that it was believed that prechlorination could be discontinued. To check this conclusion, prechlorination was stopped at a plant where quality of the filtered water is particularly dependent upon prechlorination. The filtered water became extremely bad, but water pumped into supply after superchlorination was of good physical quality with 100 percent bacterial purity.

Mr. Mackenzie noted that extreme cold retards the action of chlorine and said it may be that results will not be so good when such conditions prevail.

Prechlorination costly

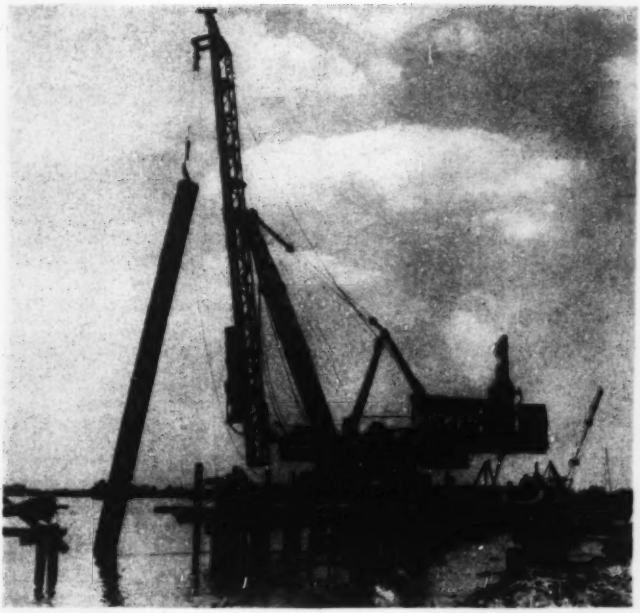
With the successful experiments, it was felt that consumption of large quantities of chlorine for prechlorination could hardly be justified at times when natural ammonia in the filtered water was sufficiently low to enable superchlorination to be used for terminal sterilization. Prechlorination has therefore been stopped at all Thames valley plants and the period of contact, for which provision is now being made at these plants, is to be reduced to one hour, instead of the two hours which had previously been required for chloramine.

Mr. Mackenzie added that superchlorination seems to have led to two other marked improvements in the quality of the water. The color has shown a reduction of 23 percent, and there has been a complete cessation of complaints of chlorinous tastes.

Economic aspects of the change include:

The increased speed with which superchlorination destroys bacteria permits a reduction in the size of contact tanks in the Thames valley plants to one half of that previously required; although experience is as yet insufficient, it is indicated that most tastes can be removed by superchlorination, pretreatment basins will be unnecessary and apparently, far less chemicals will be used in the treatment of water for the English capital.

On the subject of savings of chemicals, Mr. Mackenzie's report noted that results of superchlorination have been felt only since Jan. 1, 1949, when prechlorination was stopped. The economies shown, however, would indicate a saving of about $68,000 per year.



Giant piledriver had a special driving hood for . . .

Sinking Big Pipe Caissons In the Mississippi River

SPECIAL pile driving equipment, good job planning and some ship-building technique have been required for the construction of a large wharf which is supported on large steel caissons sunk as much as 91 ft. into the bed of the Mississippi River.

The wharf is now nearing completion at the American Sugar Refining Company's Chalmette refinery in Arabi, La., just below New Orleans. It is designed to handle 700 million lb. of raw sugar imports per year, and it replaces a 35-year old timber wharf destroyed by fire in 1946.

Structurally, the wharf contains a 1,000x75-ft. reinforced concrete deck on steel beam framing and a fireproof superstructure. The 8-in. deck and superstructure are supported on welded rigid-frame steel bents, founded on concrete-filled steel caissons. Caissons were driven to El. −85 below mean sea level.

There are 153 of these caissons, spaced 20 ft. apart in three rows. Transversely, the rows of caissons are spaced 30 ft. apart to carry the rigid-frame bents, which extend 15 ft. riverward, and connect with 105-ft. H-beam piles to form the apron of the wharf.

Complicated construction

Driving the caissons was complicated by their great size—33 to 54 in. dia. and 91 ft. long—and by submerged broken timber piling from the old wharf. Added to this were limited driving tolerances of 3 in. each way from the vertical; a confined construction area; 35 ft. of water at the outer row of cassions; and the steep river bank that slopes nearly 45 percent.

Other major construction problems included: On-site fabrication and erection of the welded steel bents; job assembly and welding of steel pipe to make the 91-ft. caissons; jet-cleaning of the open-ended caissons after driving; and filling them with tremie concrete. All of this called for thorough job planning and programming.

The contractor started setting up his equipment on June 1 of last year, but high water delayed driving the first caissons for nearly six weeks. The first caissons at the upper end of the wharf were driven from timber bents built out from the river bank.

After the job got underway the piledriver operated on top of previously driven caissons as it progressed from bent to bent, moving forward under its own power.

Five-drum universal driver

The piledriver was a five-drum universal driver with 104 ft. 6 in. of leads and a 37-ft. 6in. driving radius. The extra drums and rigging permitted operation of a 1½-cu. yd. clamshell for dredging sunken piles and other submerged debris prior to the driving of each caisson. Fortunately all caissons were driven without mishap; either missing old pile stubs or cutting their way through buried debris without getting out of plumb. This was due largely to the fact that great care had been taken by the designers to locate the caissons to minimize interference with the old piling.

Caissons were driven by a single-acting hammer, powered by a 70-hp. steam boiler. Operating at 50 blows per min., its 9,800 lb. of striking parts developed 30,225-ft.lb. of energy for a 39-in. stroke.

A 2,000-lb. cast steel driving hood was made specially for the job. It was cast with a series of steps forming concentric circles on the inside surface to seat on the five sizes of caisson which had outside diameters of 33-in., 40-in., 44-in., 48-in., and 54-in.

Impact of the hammer was transmitted to the driving hood through a 6½x13¾-in. dia. hardwood pad held in place by a steel collar seated on top of the hood. The kinetic energy of driving usually heated the hardwood pad to the point of combustion during the last few blows of the hammer. This required a new pad for each caisson.

From three to five caissons were driven per day in one 8-hr. and one 7-hr. shift. No jetting of caissons was needed to secure the required penetration.

The 8- to 10-ton steel pipe caissons were assembled in a nearby fabricating yard. They were bulkheaded, launched in the river and towed to the site of the new wharf where they were picked up by the piledriver and spotted in position for driving. A balancing beam, with pulley and cable engaging lifting lugs, welded to the top of the caisson, let it hang truly

THREE ROWS OF CASSIONS and one row of H-piles will support the American Sugar Refining Company's new 1,000x75-ft. sugar wharf on the Mississippi River just below New Orleans.

vertical. Steel-beam templates on the rig held the caisson in true position during driving.

Hinged driving-templates

The templates were attached to the front end of each of three pairs of run beams supporting the gantry frame of the driver. They were hinged to permit folding back out of the way when swinging the 91-ft. caissons into initial position, and during the last few feet of driving.

After a bent of three caissons had been driven, the piledriver was moved forward by first jacking it free of the run beams. Then the run beams were advanced 20 ft. with their front ends being spotted accurately to place the attached templates in correct position for driving the next bent of caissons. Positioning of the run beams and templates was checked longitudinally and transversely by transit and tape.

The three pairs of 24-in. by 65-ft. run beams were centered over the three rows of caissons and supported on double layers of 12x12-in. timber caps on the caissons. Hardwood rollers 7½ in. in diameter and 7 ft. long were placed transversely across each set of run beams to support three sets of 18-in. skid beams.

Two 36-in. by 65-ft. gantry beams, mounted transversely on top of the skid beams at 17 ft. centers carried railroad rails on which the piledriver operated. The piledriver was moved longitudinally on the rollers, and back and forth transversely on the railroad rails.

Two 18-in. by 22-ft. jacking beams placed inside each set of run beams aided in moving the rig forward from bent to bent. Jacks inserted between the timber pads on the caissons and the jacking beams raised the entire rig free of the run beams.

The run beams were pulled 20 ft. forward, one at a time, by one of the rigging lines. The jacks then were released, lowering the rig onto the run beams, and the piledriver was rolled forward by rigging lines and snatch blocks anchored to the forward end of the run beams. A special template on the outer rear corner of the rig held the apron H-piles in position while they were being driven.

Basis of design

Test borings at the site disclosed a thick stratum of compact fine sand lying horizontally at El. −75. Material between the top of this sand stratum and the river bottom is blue clay and silt. It varies in thickness from 45 ft. at the outer edge of the wharf to 75 ft. along the inboard edge.

In making the preliminary foundation tests, the number of blows required to drive the sampling spoon into the sand stratum indicated that it was a very firm material capable of supporting substantial loads. The overlying clay and silt has little bearing capacity.

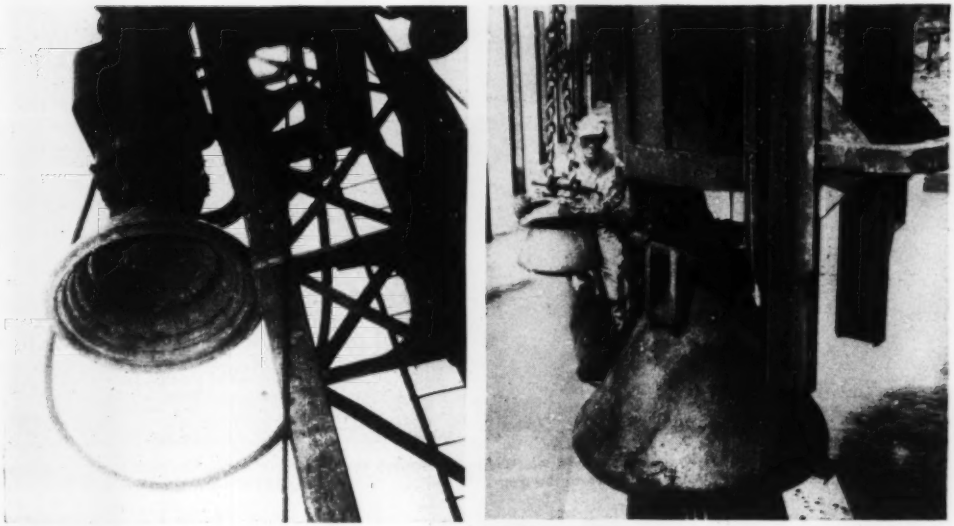
Preliminary design calculations disclosed that H-piles spaced about 10 ft. each way would cost about the same as the concrete-filled caissons. But the use of so many H-piles for supporting the wharf was deemed inadvisable due to the great risk of interference with the old submerged piles.

Cost comparisons also were made between reinforced concrete bents and the steel-bent design finally adopted—both systems to carry the concrete deck and to be supported on the caissons. The steel bent design proved more economical. It has the added advantage of permitting future alterations in the deck structure if changes are needed in the installation of machinery for handling the raw sugar.

Final decision was to design the supporting caissons for a total maximum load at the sand stratum of 20 tons per sq. ft. Actually, the maximum design load on the largest caisson (54-in. dia.) was 320 tons.

The caissons were driven open ended through the clay and silt, penetrating 10 ft. into the compacted sand, at El. −85. Water-jets then removed all soil from within the caissons down to El. −77. This left an 8-ft. sand plug in the bottom of each caisson to prevent a possible "blow-in" from unbalanced hydrostatic pressure.

A 3-ft. layer of gravel was deposited on top of the sand plug and the caisson filled with tremie concrete up to El. −8 which is the bottom of the steel columns in the rigid-frame bents.



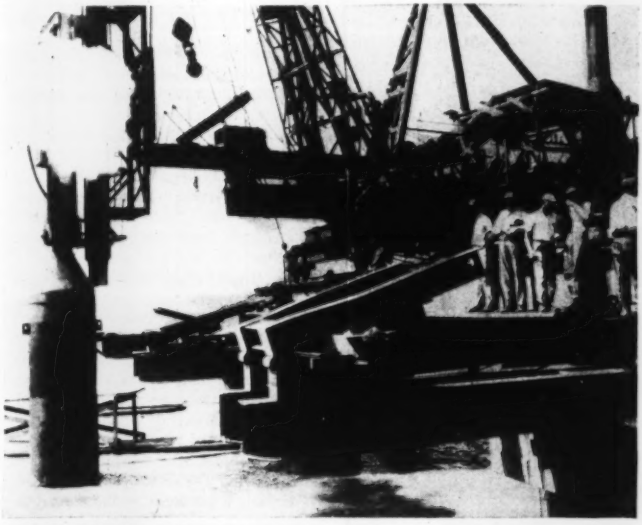
BELL-SHAPED DRIVING HOOD was cast with concentric rings (at left) to fit five sizes of caissons, while special driving ring (at right) held a hardwood pad to transmit impact of hammer to hood.

By this method of construction the load of the caissons is transferred to the sand stratum partially by friction of the steel pipe and partially by direct bearing of the tremie concrete transmitted through the gravel.

After the steel columns of the bents were set in place the caissons were completely filled with concrete up to their tops at El. +6. This encased the lower 14 ft. of each steel column in the concrete-filled caissons, making rigid connections between bents and caissons to resist transverse wind loads on the superstructure and impact of vessels moored to the front of the wharf.

Concrete for filling the caissons was mixed in a 14-S mixer on the river bank and pumped through a 6-in. line into the caissons. A timber trestle bridge placed transversely on top of the cassion carried the concrete line out to the caissons.

A 30-ton fully-revolving crane operating on top of caissons just ahead of cleaning and concreting operations handled the tremie and concrete pump lines, the timber trestle and the water jet lines. It moved forward on timber rollers from bent to bent under its own power, swinging its transverse supporting beams ahead as it went along. A barge-mounted stiffleg derrick with 75-ft. boom assisted in handling the concrete line.

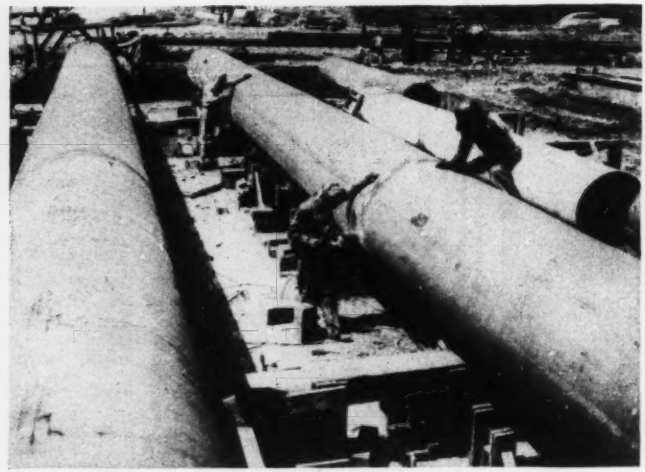


HINGED TEMPLATES attached to front ends of run beams for accurate positioning of the cassions, were folded back out of the way during the last few feet of driving.

Jet-cleaning the caissons

Two jet lines removed the clay and silt from inside the caissons which were kept filled with water at all times. A 5-in. line operated by one 6-in. and one 5-in. water pump was equipped with a straight jet nozzle for cutting the material vertically. A 4-in. line with a 5-in. water pump and a side-jet nozzle cleaned the inside surfaces of the caissons. The straight nozzle operated no lower than El. −67 to avoid disturbing the sand plug in the bottom of the caisson.

Both water jets, operating at 100 to 150-psi. pressure, had insufficient power and volume to force the clay and silt out at the top of the caissons fast enough to prevent the suspended material from settling. Consequently a 315-cfm. air compressor with a battery of three air receivers was hooked



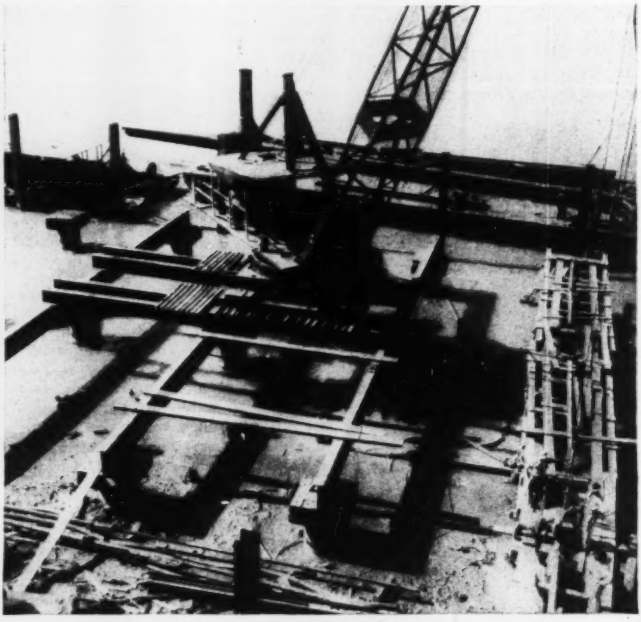
CAISSONS WERE WELDED in three 30-ft. sections on ball-bearing welding racks in the fabricating yard. They were bulkheaded, rolled to the river bank and . . .

LAUNCHED IN THE RIVER for towing to the wharf site by a small tug.

up to a 5-in. air line which was lowered into the caisson being cleaned. At 10-min. intervals, the water jets were shut off for about 30 sec. while a blast of air at 140 psi. was released at the bottom of the air line. This greatly expedited the removal of the suspended clay and silt, and permitted complete cleaning of a caisson in 2 to 3 hr.

Cleaning and concreting the caissons was carried on in two shifts. The day shift filled three caissons with an average total of 70 cu. yd. of concrete. The night shift moved the timber trestle, concrete line and jet lines ahead one bent and cleaned three caissons.

Although the driving, cleaning and concreting of the caissons was the most spectacular and fastest moving part of the job, the fabricating yard located a short distance downstream was a virtual beehive of industry. In many respects it resembled a ship-fabricating yard in its three principal operations—fabricating the 153 steel pipe caissons, the 93 H-piles and the 51 steel bents.



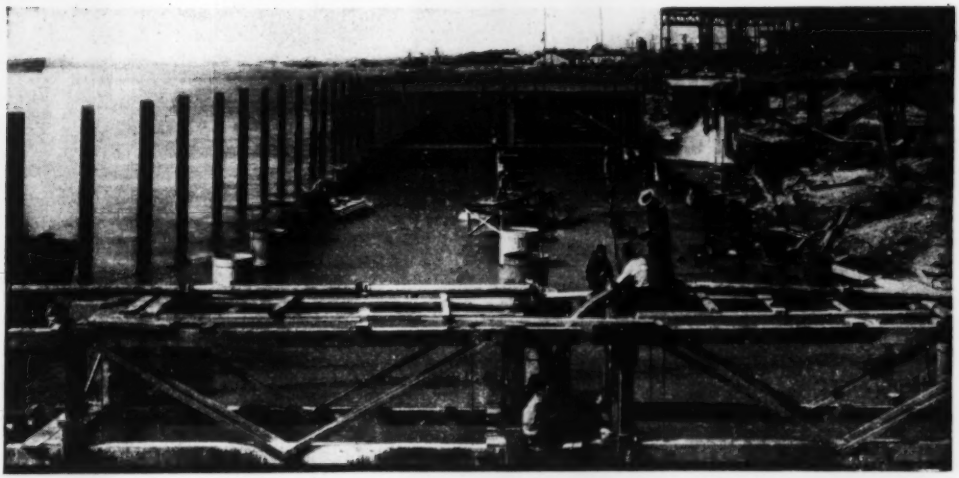
REVOLVING CRANE supported on previously driven caissons handled the 6-in. pumped-concrete tremie line and its supporting timber trestle.

Fabricating the caissons

The caissons were fabricated by laying three 30-ft. sections of $\frac{3}{8}$-in. thick steel pipe end-to-end on ball-bearing welding racks. Joints were welded, a 5x1-in. reinforcing band was welded to the top and a 6x1-in. cutting band welded to the bottom, to make a 91-ft. caisson. Completed caissons were rolled by hand-winches to the top of the river bank, bulkheaded and launched down timber runways into the river. A small tug towed them to the wharf site.

The rigid-frame bents were assembled flat on a timber welding platform laid on the ground. They were completely welded, transported by special track-mounted car onto a temporary trestle in the river. They were lowered onto a barge and transported to the job where they were erected by a barge-mounted revolving crane, with a 125-ft. gooseneck boom.

The bents are 75-ft. wide and 30 ft. high. The main section of the top beam is a 30-in., 108-lb. wide-flange beam, and the three columns are 21-in., 33-in. and 36-in. beams



RIGID-FRAME BENTS (background) were welded complete in the fabricating yard, transported by barge to the site and erected in place with their columns embedded 14 ft. in the concrete-filled cassions. (Raymond Concrete Pile Co. photo)

ranging from 124 to 182 lb. per ft.

The 105-ft. H-piles were made by butt welding and splicing 55-ft. and 50-ft. sections of 14-in., 73-lb. beams together. They also were loaded from the trestle into a barge and transported to the site. They were driven to El. −85. All caissons were driven by last Oct. 8, and the concrete deck of the wharf was finished by January 1.

Construction schedules call for the upstream end of the wharf to be completed ready to receive the first shipload of raw sugar by Mar. 1. The entire job will be completed later this summer.

Contractors on the job

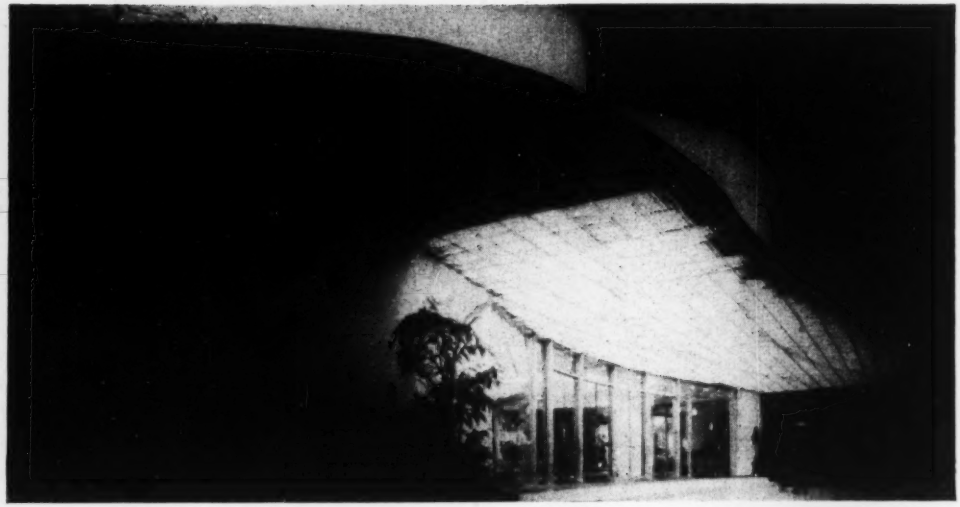
The Raymond Concrete Pile Co., New York City, held a contract for installing the caissons, fender piles, steel bents and the reinforced concrete and structural steel deck. The superstructure structural steel was furnished and erected by the Jones & Laughlin Steel Co., of New Orleans, while F. Gervais is the general contractor for the remainder of the job.

James Pinnell was project manager for the Raymond Concrete Pile Co., and James P. Cummins, general superintendent. His principal assistants included: Dan Wilson and John Williams, superintendents; Charles Erickson, steel superintendent; Leigh Beeson, civil engineer; Abe Taylor, Gerald Healey and Martin Groh, pile-driver foremen; and Peter Healey, caisson cleaning foreman.

Parsons, Brinckerhoff, Hall and MacDonald, New York City, are consultants on the project, for design plans and supervision of construction. The general design of the wharf was prepared by E. E. Halmos, assisted by S. Steuerman. Detail plans were prepared under the supervision of H. Alden Foster. W. H. Bruce is resident engineer for the consulting engineer firm.

Carl F. Huttlinger is vice-president in charge of construction for the American Sugar Refining Company. A. W. Luehrmann is plant engineer.

CAISSONS WERE CLEANED with three pressure lines—two were waterjets for cutting the blue clay and silt inside the caissons, while one was a high-pressure air line for blowing the material out the top of the caissons.



SERPENTINE WALLS, from which a curved marquee projects, extend along the front and sides of a Miami night club.

Concrete Grid Reinforces Curved Wall Of Building on Poor Soil

Jules P. Channing
Consulting Engineer
Miami Beach, Fla.

THERE are few straight lines in the plans for the $1,250,000 Copa City night club in Miami Beach, Fla. The designers wanted their 35-ft. high building—erected in a hurricane-swept region on top of a former swamp—to suggest flowing curves, inside and out.

A foundation and structural framework had to be selected that would require a minimum of time for construction. The solution was found in a bearing wall consisting of a grid of reinforced concrete, filled in with concrete block, supported on grade beams carried on spread footings.

Previous occupation of the site by several buildings also complicated foundation conditions. The last was the Copacabana night club, which burned down in the summer of 1948 and which the present structure is replacing. A pile foundation—the simplest solution—was ruled out because of possible subsurface obstructions.

Borings indicated that the ground consisted of gray sand at a depth of from 5 to 12 ft. and overlying layers of gray silt, muck, decayed vegetation and mucky sand. Because of uncertainty as to the reliability of the upper layers, footings are carried on the gray sand.

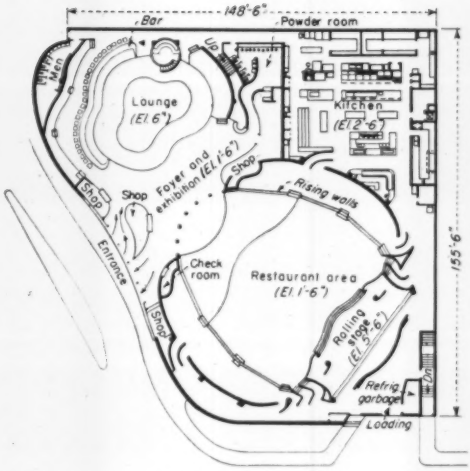
Loads are brought to the wall footings from reinforced concrete grade beams by 24 × 24-in. concrete posts. However, some of the wall load will be transmitted by the grade beams to the soil, so the footings were not designed for full load. The grade beams are 2 ft. square, reinforced with four $\frac{3}{8}$-in. round bars at the top and four 1-in. rounds at the bottom.

A CONCRETE GRID in the concrete-block walls reinforces them against hurricane.

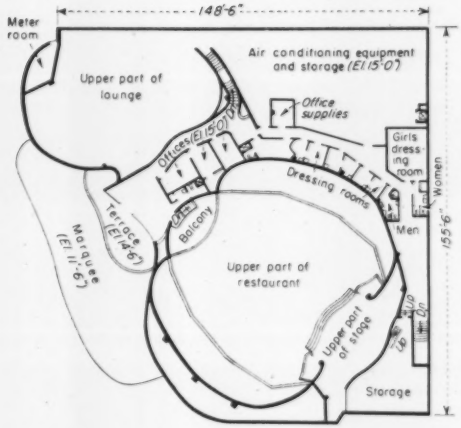
Hurricanes considered

Hurricane forces had to be taken into account in designing the walls. During the 1926 hurricane wind velocities exceeding 200 mph. were registered—equivalent to pressures of over 50 psf. Therefore, the grade beams, walls and wall structure were designed to act as a unit.

Much of the concrete-block wall extends 35 ft. to the roof without lateral bracing, except for that incorporated in the wall itself. This reinforcement consists of a grid of horizontal and vertical, reinforced concrete tie beams, mostly 8 in. wide by 18 in. deep, about 16 ft. apart horizontally, 8 to 10 ft. vertically.



FIRST FLOOR



SECOND FLOOR

PLANS of the first and second floor of the night club indicate the extensive use made of curved walls in the layout.

The wisdom of this construction was disclosed when a hurricane occurred during construction. Although the walls had been built almost to full height, they had not yet been tied in with the main structure, but they withstood the winds successfully.

Inside the building, the structural frame is of reinforced concrete and structural steel, reflecting the necessity of using available materials. Some columns are steel, some concrete. Steel framing was used for the second floor in the kitchen area, which was designed to take heavy storage or air-conditioning equipment. Junior channels —12 in. deep and from 5 to 7 ft. apart —support the 2½-in. cast-in-place gypsum roof. This roof construction was of unusually low cost and light weight.

To provide large, clear floor areas, the columns are spaced up to 100 ft. apart, with 8 to 10-ft. deep trusses spanning between them at about 19-ft. intervals. Ceilings over the lounge and restaurant are suspended from 12-in. junior channels extending between lower-chord panel points of the trusses. Also hung from these trusses are a large portion of the second floor, a balcony and spotlight platforms.

An unusual problem was the design of a cyclorama—a double-curved wall in the rear of the stage. Although the wall supported the structure above, the bottom portion had to be kept off the ground to permit a sliding stage to pass under. The solution was to design the wall to act as a beam, with a T-section (the first floor) as the bottom flange and an inverted L-section (the second floor) as the top flange.

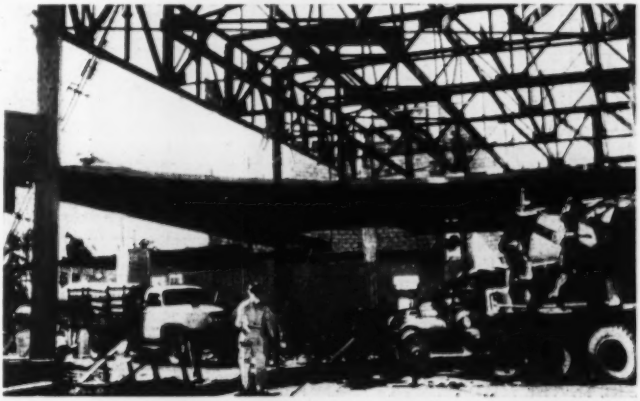
Two spectacular architectural features—the marquee and an overhang above—also presented complicated structural problems. Cantilevering up to 28 ft., the marquee has a thickness at the curved outer edge of 5 in. and a depth at the building line varying from 11 to 23 in.

An economical solution, in view of the possibility of hurricane forces was found in cantilevering steel beams at 3-ft. intervals the full span of the marquee. These beams are covered with 2½ in. of concrete, which was cast on heavy building paper that was attached to the wire-mesh reinforcing.

The marquee beams are anchored in one area to a 12 × 54-in. concrete girder, reinforced with two layers of steel at top and bottom. At another place, the marquee is anchored to a steel girder, which in turn is tied into two columns and a roof truss.

The overhang above the marquee, extending between the bottom of the trusses and the top of the parapet wall, also projects out with a sweeping curve. Satisfactory support is provided here by cantilever trusses placed in line with the main trusses.

The Copa City night club was designed by Norman Bel Geddes, in association with Norman M. Giller, Miami Beach architect. The author was consulting engineer and Allied Construction Co. general contractor.



ROOF TRUSSES, from which part of the second floor and the interior finish are suspended, make it possible to obtain unobstructed floor areas.

Economical Flexible Pavement Design

Norman W. McLeod
Engineering Consultant, Department of Transport, Ottawa, Canada

Part II—Discussion of Test Results

PART I of this series of four articles on the conclusions drawn from an investigation of flexible pavements on Canadian airports was published in the issue of April 28. It described the soil conditions found at the several airports in various parts of Canada where the tests were conducted by the Department of Transport and reviewed the test methods that were employed. This second article discusses the test results.

Information from deflection curves

The first step in utilizing the load test data described in Part I was to plot the corrected deflections versus the logarithm of the number of repetitions of each corrected load on semi-log graph paper, Fig. 9. From the graph of Fig. 9, the load deflection curves of Fig. 10 for 1, 10, 100, 1,000 and 10,000, repetitions of load can be drawn.

The load supported on a circular bearing plate of equivalent contact area at 0.5-in. deflection for 10 repetitions appeared to correspond quite well with the maximum aeroplane wheel

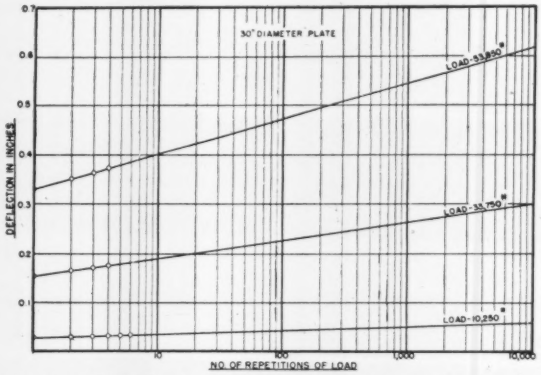


FIG. 9. INFLUENCE ON DEFLECTIONS of repetitions of loading for each of three magnitudes of loads.

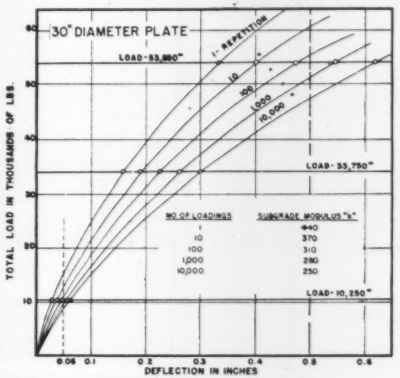


FIG. 10. LOAD DEFLECTION CURVES drawn from the curves plotted in Fig. 9.

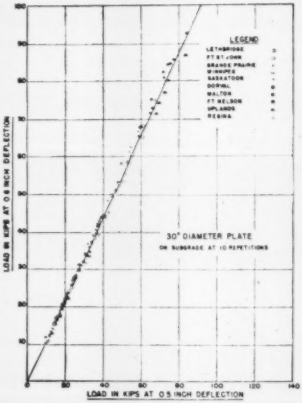


FIG. 11. THE LOAD carried on a 30-in. plate at 0.6-in. deflection is always 110 percent of that carried at 0.5-in. deflection.

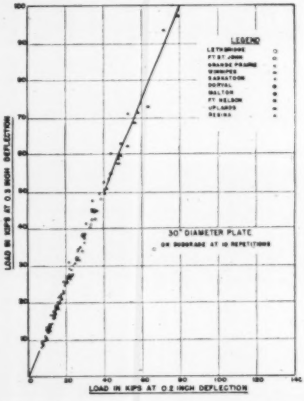


FIG. 12. THE LOAD supported at 0.3-in. deflection is always 125.3 percent of that carried at 0.2-in. deflection.

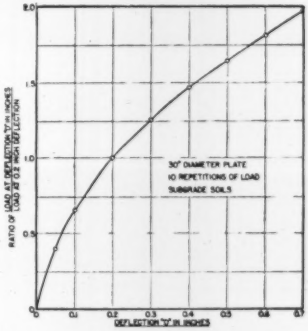


FIG. 13. CHART to show that if the load carried by a 30-in. plate on an airport pavement at 0.2-in. deflection is known, the load that can be carried at any other deflection up to 0.7 in. can be calculated with reasonable accuracy.

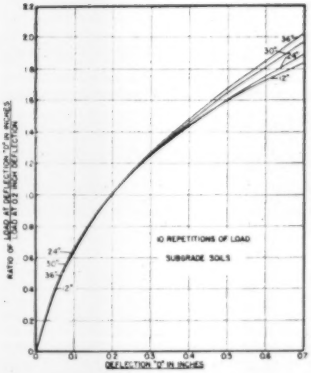


FIG. 14. RATIOS of loads at deflections "D" in inches over load at 0.2-in. deflection plotted against deflection "D" for various sizes of plates on subgrade soils.

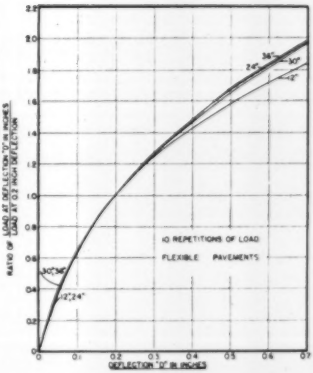


FIG. 15. FOR BITUMINOUS PAVEMENTS the ratios for each of the various sizes of plates are almost identical with those shown in Fig. 14 for subgrade soils.

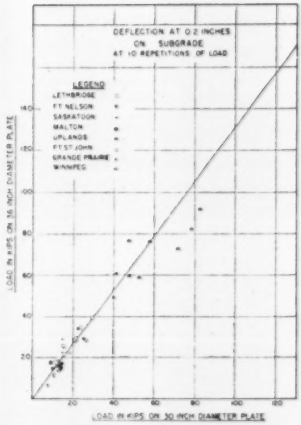


FIG. 16. THE RATIO of the load on a 30-in. plate to that supported on a 36-in. plate for any given deflection is shown by this plotting of points to be fairly constant.

load that the runways at Canadian airports had been carrying under reasonably intensive traffic, and this has been adopted as the criterion for the design of flexible pavements for runways for capacity operations. This means that the load test data (Fig. 9) are extrapolated to only ten repetitions for normal practical application, and the possible error due to extrapolation over this narrow range is small.

Analysis of all load deflection curves has shown that on the average, for any given deflection from 0.2 to 0.7 in., the loads carried at one repetition and 100 repetitions are respectively 115 and 89 percent of those supported at 10 repetitions. These ratios apply to load test data for both cohesive subgrades and flexible pavements, and appear to be independent of bearing plate size from 12 to 42 in. in diameter.

The load deflection curves for practically all test locations were found to have the same general shape as those shown in Fig. 10 whether the subgrade was weak or strong.

The possibility that for a bearing plate of any specified size, the load supported at any given deflection was always a certain percentage of the load supported at any other given deflection was investigated. Fig. 11 demonstrates that on the average the load supported on a 30-in. diameter bearing plate at 0.6-in. deflection is always 110 percent of the load carried at 0.5-in. deflection, regardless of whether the subgrade is weak or strong. Similarly, Fig. 12 indicates that on the average the load carried at 0.3-in. deflection is always 125.3 percent of the load supported at 0.2-in. deflection.

Fig. 13 summarizes this information for a 30-in. diameter bearing plate, and shows that if the load supported at 0.2-in. deflection is accurately known, the load carried at any other deflection over the range from 0.0 to 0.7 in. can be calculated. Ratios similarly determined are summarized in Fig. 14 for 12, 24, 30 and 36-in. diameter bearing plates. Fig. 15 contains the information determined from a similar study of data from load tests made on bituminous surfaces. It is of interest that the ratios illustrated in Fig. 15 for bituminous surfaces are almost identical with those of Fig. 14 for cohesive subgrades, for any given size of bearing plate.

The next step was to determine, for example, whether for any given deflection the load supported on a 36-in. diameter bearing plate was always a definite ratio of the load supported on a 30-in. bearing plate, for the same test location. Fig. 16 indicates that a constant ratio appears to exist whether the subgrade is weak or strong. These relationships were investigated for all other sizes of bearing plates at different deflections, and are summarized in Fig. 17 for 0.2 and 0.5-in. deflection, on the basis of the load on a 30-in. diameter

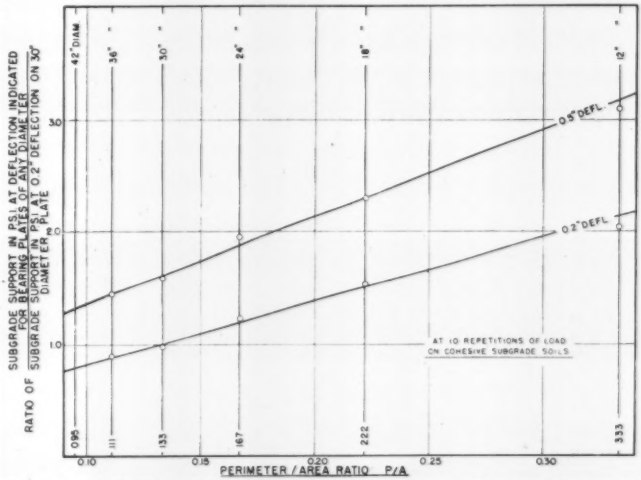


FIG. 17. SUMMARY of the relationships for various sizes of plates for deflections of 0.2 and 0.5 in. on the basis of the load on a 30-in. plate at 0.2 in. deflection as unity.

plate at 0.2-in. deflection as unity.

Information similar to that of Figs. 14 and 17 can be combined to give the diagram of Fig. 18, which is based upon the load carried on a 30-in. diameter plate at 0.2-in. deflection as unity, or as one pound per square inch. Fig. 18 indicates that for bearing plates varying from at least 12 to 42 in. in diameter, and for any deflection from 0 to 0.7 in., if the load supported on a single bearing plate at a single deflection has been accurately measured, the load that is supported by the subgrade on any other size of bearing plate for any other deflection, can be calculated.

Fig. 19 is similar to Fig. 18, but has been prepared from data obtained for load tests performed on bituminous surfaces.

Cohesive subgrades

It has already been pointed out that the supporting value of subgrades and base courses is considered by engineers in the United States and Canada to be the most important highway engineering problem requiring a satisfactory solution today, and that this is also probably true of airport engineering. On the basis of data obtained so far, Fig. 18 provides a great deal of fundamental information concerning the one-half of this problem that pertains to the supporting value of cohesive subgrades.

(a) Fig. 18 clearly indicates that the term "subgrade bearing capacity" has no meaning unless both the size of the contact area and the deflection involved are clearly specified.

(b) On the average, at any given deflection from 0.2 to 0.5 in. the unit load carried by any given subgrade on a 12-in. bearing plate, is slightly more

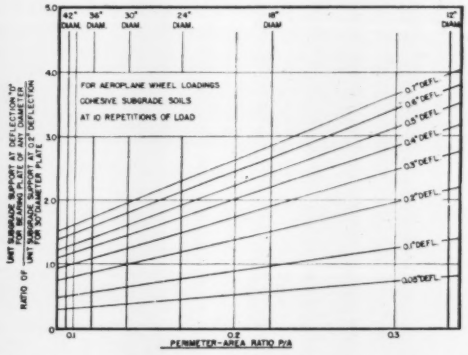


FIG. 18. ON A COHESIVE SUBGRADE, within the range of deflection here shown, if the load supported on a bearing plate at a given deflection has been determined, the load supported on any other size plate can be calculated.

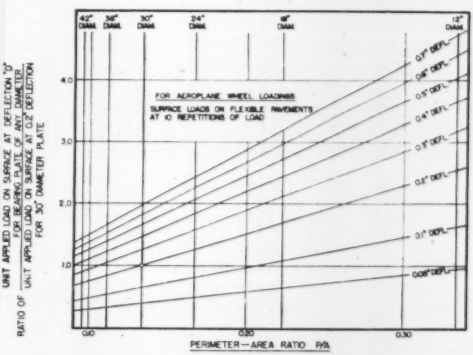
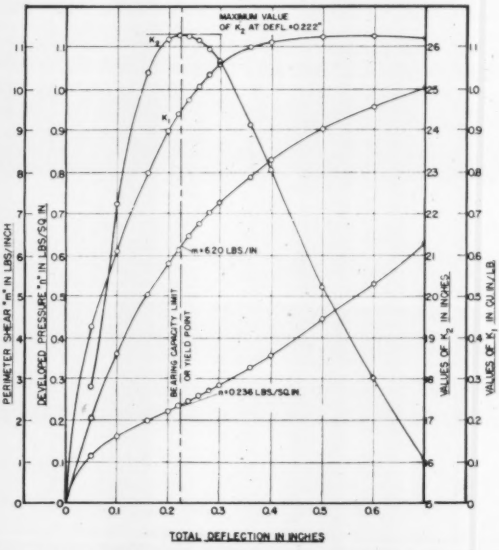


FIG. 19. TESTS ON BITUMINOUS PAVEMENTS similar to those on cohesive subgrades used to compile the chart shown as Fig. 18 were used in the preparations of this chart, which can be used for similar calculations.



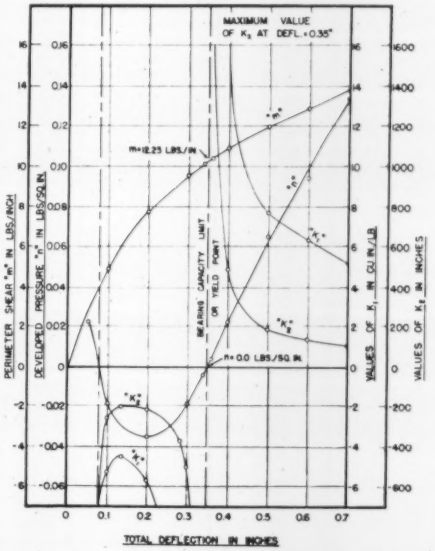

MAXIMUM VALUE OF K_2 AT DEFL. +0.35"
m=12.23 LBS/IN
n=0.0 LBS/SQ.IN
BEARING CAPACITY LIMIT OR YIELD POINT
PERIMETER SHEAR "m" IN LBS/INCH
DEVELOPED PRESSURE "n" IN LBS/SQ.IN.
VALUES OF K_1 IN CU.IN./LB
VALUES OF K_2 IN INCHES
TOTAL DEFLECTION IN INCHES

FIG. 20 & 21. YIELDPOINT DIAGRAMS for cohesive soils (left) and flexible pavements (right). For airports tested, the average yield points occur at load causing deflections of 0.222 and 0.35 respectively.

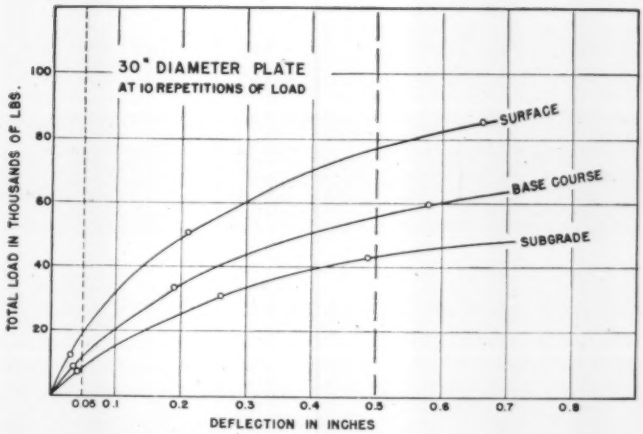


FIG. 22. DEFLECTION CURVES for corresponding surface, base-course, and subgrade load tests made at a large number of locations.

than twice the unit load supported on a 30-in. bearing plate.

(c) For any given deflection, a straight line relationship exists when unit load is plotted versus the perimeter/area ratios (P/A) of different bearing plate sizes.

(d) The contact areas of highway wheel loads vary greatly from the smallest passenger car to a large truck, and this difference is even much more pronounced between the tires of a very small aeroplane and those of the huge aircraft weighing from 100 to 200 tons that may not be uncommon in the near future. It is impractical to have to measure the supporting value of the subgrade for each of these sizes of contact area when working out design problems involving different wheel loads and tire pressures. Consequently, there is need for a method whereby limited subgrade load test data obtained for one size of bearing plate, can be extrapolated to any other contact area for which bearing capacity data are required. Fig. 18 answers the need for this information with regard to the subgrade, and Fig. 19 provides similar information for load test data on bituminous pavements.

Deflections at yield point

The average yield points for subgrades and bituminous surfaces can be determined from the diagrams of Fig. 18 and 19, respectively, by means of a method developed by Professor Housel.[6] The yield point occurs either at a minimum value of the K_1 curve, or at a maximum value of the K_2 curve. The results of this analysis of Figs. 18 and 19, are given graphically in Figs. 20 and 21, and indicate that the average yield points for the subgrades and the flexible pavements at the airports tested so far, occur under the loads which cause deflections of 0.222 and 0.35 in., respectively.

According to Professor Housel of the University of Michigan, any load that causes a deflection greater than the yield point deflection can be expected to continue to settle into the subgrade or bituminous pavement with time. On the other hand, any load that causes a deflection smaller than the yield point deflection can be supported for an indefinite time without further settlement occurring. For the design of flexible pavements that may be subjected to standing loads, it is important that the yield-point deflection is not exceeded.

The base courses employed at the different airports consisted of pit-run and crusher-run gravel, waterbound macadam, and mechanical stabilization. The composition of the bituminous surfaces varied from those made with liquid asphalts and soft asphalt cements, to penetration macadam, sheet asphalt, and asphaltic concrete.

Fig. 22 illustrates the load deflection curves for the corresponding surface, base course, and subgrade load tests that were made at each of a large number of locations. The thicknesses of base course and of pavement were accurately measured at each test location. By subtracting the load supporting value of the subgrade from that of the base course at any given deflection, and dividing by the thickness of base, the supporting value of the base course per inch of thickness can be determined.

Similarly, subtracting the load supporting value of the base course from that of the pavement, and dividing by the pavement thickness, gives the supporting value of the bituminous surface per inch of thickness. When this was done for the considerable number of test locations for which data have been obtained, the somewhat surprising result was found that for any given subgrade bearing capacity, the supporting values of all the different types of granular base courses per unit thickness were the same, as nearly as this could be determined.

For bituminous pavements that have been in service for some time, the load test data demonstrated that 1 in. of bituminous surfacing made with liquid asphalts or soft asphalt cements has the supporting value of 1.5 in. of granular base, and that this ratio is 2.5 for well designed and constructed penetration macadam, sheet asphalt and asphaltic concrete. However, 1 in. of a newly constructed bituminous surface may have a somewhat smaller supporting value than 1 in. of granular base.

References.

6. W. S. Housel "A Practical Method for the Selection of Foundations Based on Fundamental Research in Soil Mechanics", Engineering Research Bulletin No. 13, Department of Engineering Research, University of Michigan, Ann Arbor, Michigan.

Part III of this group of four articles will appear in the May 26 issue.

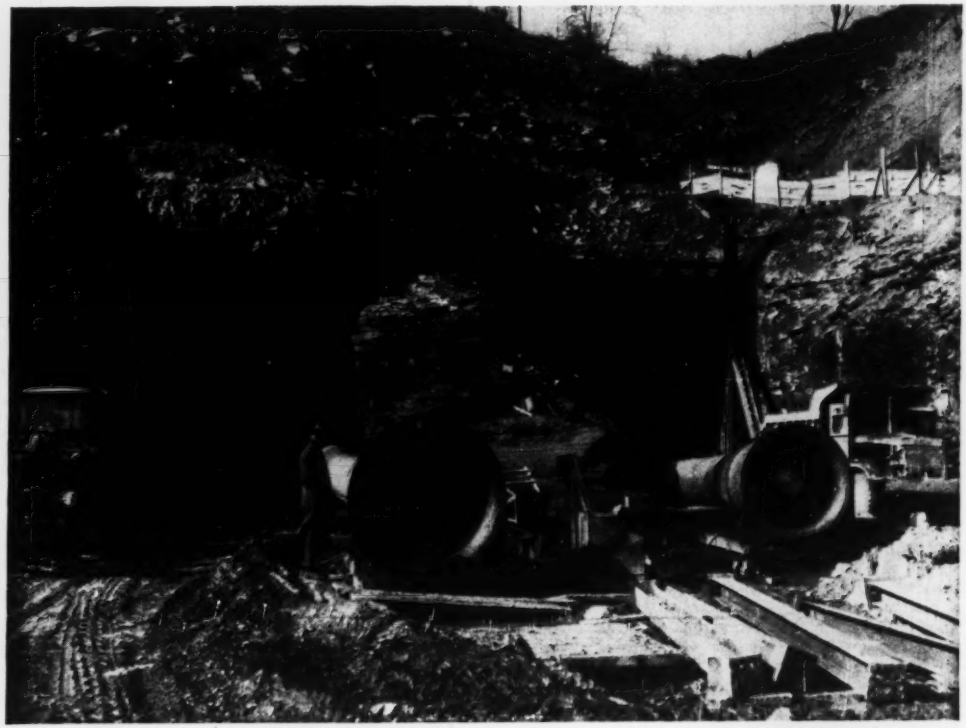
Ground Control in Jungles Aided by Aluminum Foil

Aluminum foil, because of its high reflectivity, is found by photogrammetrists to be an effective material for marking ground-control positions in jungles.

The foil is useful at two stages of surveys: Reconnaissance for intervisible triangulation stations; and station-markings for aerial photography.

Flying low, the reconnaissance man selects likely hills for stations. At each of these he dumps 325-ft. rolls of foil, which unroll on the way down and drape the hill's foliage. Subsequent identification by air and ground crews is facilitated, especially in jungle country where natural cover makes every hill look like every other hill. Once ground-control stations are established they are marked by large aluminum foil crosses, preparatory to actual mapping photography.

The foil also reflects radar impulses, a fact that implies its additional use for some aerial-position reckoning. Experiments with aluminum foil have been performed in Panama by the Inter-American Geodetic Survey and by a U. S. Army topographic unit.



Big fans insure ample ventilation for the 36x26½ ft twin bores of. . . .

Pittsburgh's Squirrel Hill Tunnel

"THE TOUGHER THE ROCK, the better the driving", is an old adage in tunnel works. It's borne out in the Squirrel Hill tunnel on the Penn-Lincoln Parkway in Pittsburgh, Pa.: progress is contingent upon the unpredictable quality of the rock.

Each of the twin 36x26½-ft. bores is being driven 24 ft. per day—when the Appalachian shales are found to be hard enough to permit an 8-ft. drill round without excessive overbreak. But where the shale, sandstone or shaley limestone are seamy and easily fragmented, progress drops down as low as 12 ft. per day per tunnel.

Tunnels are being driven from the east portals on a 2.5-percent ascending grade. Maximum overburden above top of tunnel is 240 ft. The completed tunnels will measure 4,225 ft. between portal faces, including ventilating buildings and cut-and-cover sections at each end. The north tunnel has a rock bore 3,785 ft. long, and the south tunnel bore is 3,895 ft.

The tunnels are on a tangent and parallel, 60 ft. c. to c. Each tube will contain a 24-ft. finished roadway and one 2 ft. 7½-in. service walk. Minimum headroom in the arch-type tunnels will be 14 ft. from roadway to a suspended ceiling slab (above which will be the ventilating air ducts.) The reinforced concrete tunnel lining, in general, will have minimum thicknesses of 27 in. in the walls and 24 in. in the arched roof.

Three-deck drill jumbos

A three-deck steel-frame drill jumbo operates in each tunnel on 20-ft. gage rails. Tractors move the jumbos to and from the headings, enough track being maintained to permit pulling the jumbos back about 150 ft. during shooting.

Drilling, loading, shooting, mucking and erecting steel tunnel lining are synchronized for continuous and alternate operation in both tunnels, 24 hr. per day. This keeps the number of drillers and muckers in each shift to a minimum and practically eliminates lost time ordinarily required for ventilation and jumbo positioning in driving a single tunnel. One crew of miners sets steel and drills both tunnels in each shift.

Top decks of both jumbos are completely timbered. The outside platforms on the two lower decks are stationary, while hinged interior platforms are let down to permit passage of the mucking shovels and trucks. After the mucking has been completed the platforms are raised by truck, tow lines and sheaves are attached to the top deck, and the platforms are locked in a horizontal position ready for drilling.

There are 16 drifters on one jumbo

and 10 on the other. The 10-drifter jumbo was assembled on the job first and placed in operation in the south tunnel. The second jumbo was built with two vertical columns on each side to mount six extra drills, in an effort to cut down lost time swinging the drills to catch rib holes.

Hydraulic drill jibs

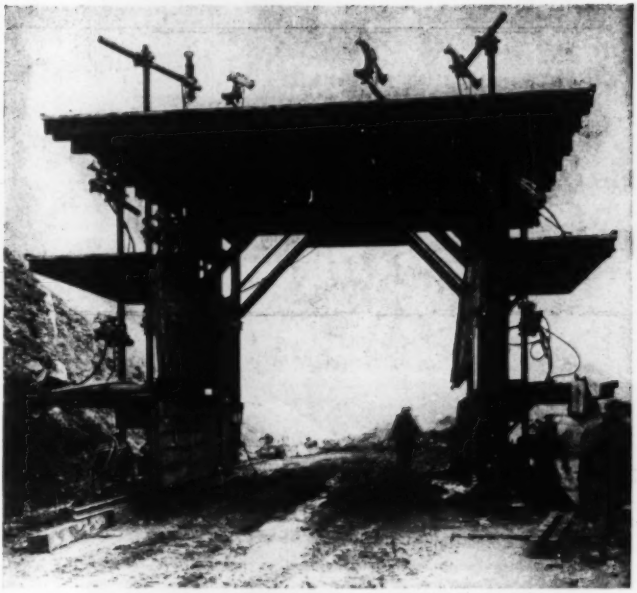
Each jumbo mounts four drifters on the top deck, two of which have hydraulically operated jibs for quick and easy positioning of the drills and to simplify collaring the high, hard-to-reach center holes just below the curved roof. The other drifters are column mounted.

The average drill pattern varies from 85 to 115 holes, depending on the type of rock, with a 10-hole V-cut. The holes are allocated so no drill is required to drill more than nine holes per round. Under ordinary rock conditions, the straight-in holes are drilled 8 ft. deep, and the V-cut holes, 10 ft. deep, making an average of about 850 ft. of holes to be drilled for each round.

The first 4 ft. of hole is drilled with a 2⅝-in. bit, with a 2½-in. bit being used on the 8-ft. drill steel and 1⅝-in. on the 10-ft. steel in the V-cut holes. All bits are side-hole, detachable, and drills are mounted on screw feeds for a 4-ft. steel change.

Servicing the 30 rock drills on the job (four are kept for standby) is a full time job for one serviceman and helper on the day and swing shifts. The shale and limestone are so soft that no bit-sharpening is needed, and the life of the bits is extremely long. Some bits last for as many as six rounds.

Holes are loaded with 40-percent strength gelatin dynamite and fired by electric blasting caps detonated by electric switches from a 440-v. power line. A typical average firing sequence employs one immediate and 13 one-second delays.

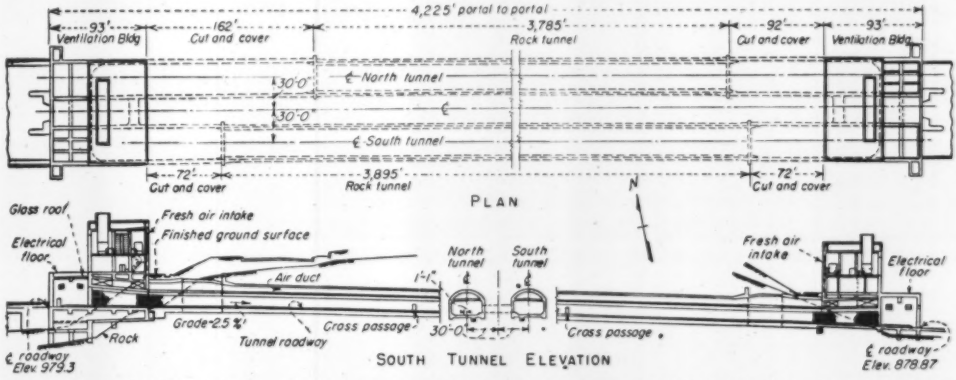


ALL-WELDED DRILL JUMBO mounting 16 drifters was built with hinged center platforms to permit passage of mucking shovel and big trucks. (Joy Mfg. Co. photo)

Two short-boom shovels, converted from diesel to electric power with 100-hp. motors, do the mucking at the face of tunnels. One has a 14-ft. boom and 14-ft. dipper stick, the other a 14-ft. boom and a 16-ft. stick. Power for the shovels comes from a 2,300-v. line extended into the tunnel from the main transformer station and cut down to 440-v. at a portable transformer station inside the tunnels. These portable transformers are kept within 500 feet of the face to keep power losses to a minimum. Seven 9-cu. yd. diesel end-dump trucks haul the blasted rock to a nearby spoil area.

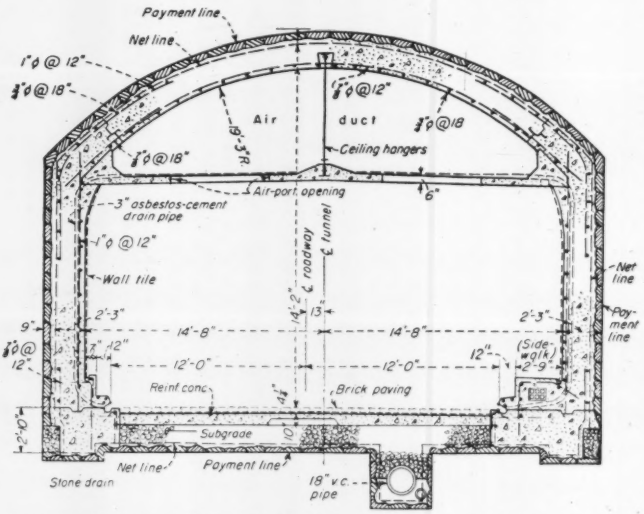
Trucks turn in tunnels

Considerable mucking time is saved by an ingenious method of turning the trucks around near the face of tunnel instead of backing all the way in from the portal. Each truck heads into the tunnel and drives forward to



TWO LANES of traffic on the Penn-Lincoln Parkway will be carried in each tube. Ventilating buildings at each portal will clear fumes from the 4,225-ft. tunnel through air ducts in the top of the completed tunnels.

SHORT-BOOM DIESEL SHOVELS were converted to electric power for mucking into 13-cu. yd. dump trucks. Shattered overbreak called for close roof-lagging in some areas. (Joy Mfg. Co. photo)



CONTEMPORARY DESIGN FEATURES of the completed tunnels will include: A brick-paved 24-ft. roadway, with sand and asphalt cushion, on a reinforced concrete base; steel-armored curbs with continuous open gutter; one 2-ft. 7½-in. service walk; sidewall and roadway drains; tile wall trim; and a suspended concrete ceiling with air ducts above.

TABLE OF MAJOR TUNNEL QUANTITIES

Item	Quantity	Unit Contract Price
Rock Excavation	247,500 c.y.	$15.90
Permanent Steel Tunnel Support	7,761,000 lb.	0.15
Concrete Lining	62,000 c.y.	35.00
Concrete Ceiling	4,700 c.y.	48.00
Concrete Floor	20,900 sq.yd.	10.00
Reinforcing Steel	5,273,000 lb.	0.10
Wire Mesh Reinforcement	593,000 lb.	0.16

a 9x28-ft. greased steel skid-plate laid on the sloping floor along one side of the tunnel. The truck is angled into position with its front wheels on the skid-plate. A cable from an air hoist is hooked to the front bumper and the front end skidded around. The truck then backs up only a short distance to be loaded.

Rock dust is kept to a minimum in the tunnels by water lines feeding through the drifters and by continuously wetting the muck while shovels load it into the trucks. Water is supplied to the jumbos under pressure through a 3-in. header, to a 2-in. pipe and through 2-in. hose. Operations to date have been extremely dry. In fact, it has been necessary to sprinkle calcium chloride on the tunnel roadways to lay the dust.

Each tunnel is lighted from portal to within 100 ft. of the face with a string of 50-watt lamps spaced 8 ft. apart. Lighting on each jumbo includes two 200-watt floodlamps to illuminate the face of tunnel supplemented by cluster lights of one to four 150-watt lamps over the drifters.

Big fans for ventilation

Each tunnel was ventilated for the first 1,000 ft. by a 54-in. dia. "vane-axial" fan powered by a 75-hp. motor, blowing air into the tunnels. Fresh air was carried as close to the headings as possible in 36-in. lines of collapsible tubing. Each fan was capable of blowing 43,000 cfm. of air into the tunnels.

Breakthroughs 11-ft. high by 8½ ft. wide are being made every 500 ft. through the 24-ft. rock barrier separating the tunnels. Each breakthrough is closed with a wooden bulkhead and door as the next one is made, so that the air circulates to the face of the tunnel. The breakthroughs will be developed later as permanent 7x4-ft. cross-passages containing telephone, fire hydrants and fire-fighting equipment.

The ventilation system was completely changed after the tunnels had been driven about 1,000 ft. An air lock was installed in the east portal of the south tunnel, and three more 54-in. fans were mounted vertically at the south side of the tunnel. These fans are reversible and can either suck out of or blow into the tunnel, depending on which heading has just been blasted. The fans thus can create a flow of air into one tunnel and out the other, clearing smoke and fumes from a shot in about 30 min. Two auxiliary fans, one in each tunnel, pick up the air at the last cross-passage and carry it up to the headings through 30-in. steel tubing. This installation

PROOF THAT TIGHT LAGGING is needed in the seamy rock areas (at left) is shown by workmen (at right) examining the extent of overbreak above the tunnel roof.

is designed to furnish 240,000 cfm. of air to the tunnels.

Compressed air for operating the drills is supplied by four heavy duty, semi-portable compressors housed in a quonset hut near the east portal. Each compressor delivers 723 cfm. at 100 psi. All compressors discharge into a 12-in. header that feeds into a 4x14-ft. air receiver. Air from the receiver flows through an 8-in. line into the tunnels, then into a 6-in. line in each tunnel and finally through 4-in. hose takeoffs to the jumbos.

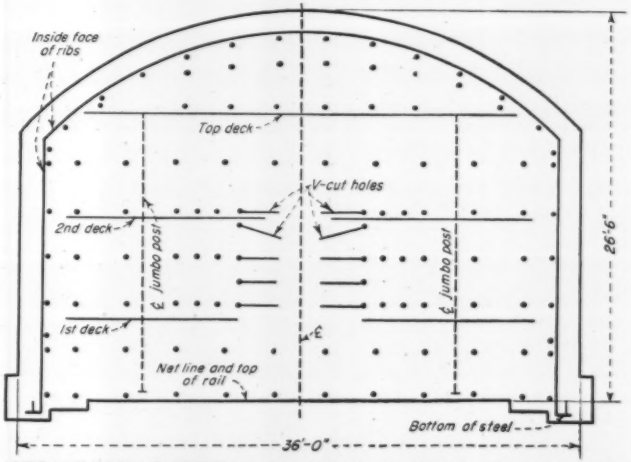
Posts carry ground support

Steel tunnel lagging of 6-in. channels is carried on 8-in. flange 40-lb. H-beam steel arch ribs supported by 8-in. wide-flange 31-lb. posts. The posts in the north tunnel are 9 in. longer than those in the south tunnel because the permanent ventilating air duct is to be 9 in. higher in this tunnel. The posts are set on precast concrete blocks of variable thickness, placed directly on the rock floor of the tunnel. They are erected in place by a utility hoist anchored on the top deck of the jumbo.

Arch ribs are raised to the top deck of the jumbo by the utility hoist, lifted into position by the men, and supported on timber blocking until bolted in place. Ribs are spaced 4 ft. apart except for two short stretches, one in each tunnel, where the rock was sound enough to permit 5-ft. spacing.

The arch section has been lagged very tightly to avoid falls of unsound rock in the roof—which spalls off continuously when exposed to the air. The spacing varies from solid to 6 in. depending on conditions. Some lagging has been placed on the sides to prevent spalls from bouncing against the haunch and dropping out in the roadway. These lags also help to protect the electric light lines and the shooting lines that are strung along on the vertical posts. Considerable timber blocking has been used where the unsound condition of the rock warrants. This timber blocking is supported by both the lagging and the arch ribs.

Tunnel ribs and lagging are erected ahead of the jumbos, right up to the face of the tunnels. One smaller jumbo on light rails follows along about 500 ft. behind the drill jumbo, removing loose blocking, putting in permanent skulls and blocks, and straightening



AVERAGE DRILL PATTERN contains 114 holes, 10 of which are V-cut. The firing sequence employs one immediate and 13 one-second delays.

and tightening lagging loosened by successive blasts.

All seams in the surrounding rock will be pressure grouted. Tunnel ribs will be incorporated in the concrete lining.

Four big quonset huts

There was not much the contractor could do about the mud in his camp —located on a slag dump adjacent to the east portal. But the problem of wintertime maintenance and servicing of equipment was solved by erecting one 32x90-ft. and three 40x60-ft. quonset huts, heated by an oil-burning central plant.

The larger hut contains a first-aid room, contractor's office, a field office and a concrete testing laboratory for the Pennsylvania Department of Highways, and lockers, showers and toilets for the men. A second hut contains the compressor room, electricians warehouse, switchroom and a general warehouse; the third houses stock rooms and store rooms, and the fourth is a repair garage and maintenance shop. The carpenter shop, blacksmith shop and drill-maintenance shop are each housed in separate buildings.

Squirrel Hill tunnel is being built as a regular federal-aid project. B. Perini & Sons, Framingham, Mass., hold a two-year, $13,768,000 contract for the tunnel project. It includes tunnel excavation and concrete lining, cut-and-cover sections at both ends of the tunnels, grading and drainage of the approaches, and mass concrete in the ventilation buildings up to the electrical floor. Construction was started Sept. 7, 1948. By March 19 of this year the north tunnel had been driven 1,430 ft. and the south tunnel 1,700 ft.

Five contracts remain to be awarded for the completed tunnel. They include: completion of the ventilation buildings; tile lining for the tunnels; brick paving in the tunnels; fans, motors and transmissions for the ventilating systems; and electrical installations.

Louis Capone is general superintendent for the contractor. Charles H. Taylor is general superintendent of tunnels; E. D. Phinney, project engineer; Robert E. Bradley, office engineer; and Anthony Casali, master mechanic.

Highway engineers

The project is being constructed under the supervision of the Pittsburgh District of the Pennsylvania Department of Highways, reporting to E. L. Schmidt, chief engineer of the department. J. Paul Ambler is district engineer, assisted by J. S. Yard. H. S. Gahagan is district construction engineer, assisted by H. E. White and E. A. Rush. G. E. Riley is resident engineer.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill)

Waivers of Defects

Waiver is a voluntary relinquishment of a right or benefit which one has under a contract.

Where a contractor undertook to stucco and waterproof a building, a letter written by the owner to the contractor, stating that the job was "nicely done", at a time he did not know that the waterproofing was defective, did not constitute a waiver of his right to compel the contractor to remedy the defective work.[1]

In this case the contractor refused to remedy the defect, claiming that the owner had waived his right to compel him to do so, and brought the action to recover the balance due on the contract.

The court denied the contractor any recovery, holding that the letter in question, did not constitute a waiver of the right to have the contract properly performed, and as the contract was an entire one and not divisible, the contractor was not entitled to recover, in absence of proof of performance.

Where the owner accepts the building with the understanding that certain defects in the structure will be corrected, such acceptance does not constitute a waiver of the right to have the defects corrected.[2]

The mere fact that an owner of a building takes possession of it after it has been erected or repaired does not in itself constitute an acceptance of the contractor's workmanship. Nor is the failure of the owner to take charge of the prosecution of the work, when he finds that the contractor is not complying strictly with the conditions of the contract, a waiver of his right to damages for defective work. However, where one party commits a breach of contract, it is the duty of the other party to make all reasonable efforts to minimize the loss sustained by the breach.[3]

An owner may acquiesce in the contractor's failure to fully perform the contract by accepting the work without protest when he has knowledge of the fact that the work has not been properly performed. However, such acceptance does not constitute a waiver of the right to compel the contractor to make good latent defects, of which the owner had no knowledge at the time of the acceptance of the work. Where latent defects develop after the work has been accepted, the owner, even though he has paid the contractor in full would be entitled to recover the cost of remedying the defects.[4]

(1) Barnes v. Goodner, 49 S.E. 2d 128 (Court of Appeals of Georgia, July 16, 1948.)
(2) Costanza et al v. Cannata et al., 214 La. 29, 36 So. 2d 627, (Supreme Court of Louisiana, June 1, 1948.)
(3) Garbis v. Apatoff et ex., 63 A. 2d 307 (Court of Appeals of Maryland, Jan. 12, 1949.)
(4) 9 Am. Jur. pp. 39-40.

Time of Performance

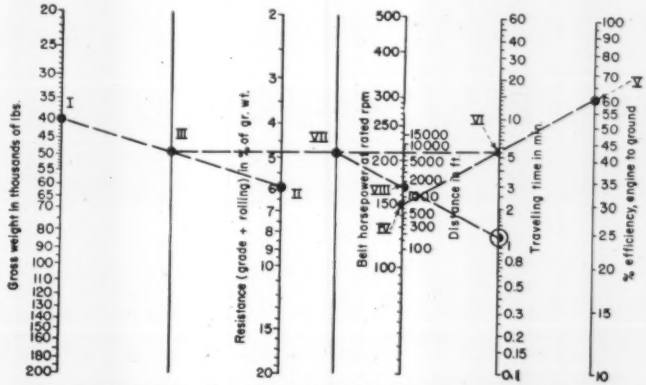
Time is not ordinarily of the essence in building contracts, but can be made so by the express stipulation of the parties, or without such express agreement, by the nature of the contract itself, or by the circumstances under which it was made which would indicate that delay in performance would deprive the work of value.

Where a contractor agrees to build a house within a specified time, he is bound to do so, unless prevented by the acts of the party for whom the work is being done or unavoidable casualties. The contractor is the judge of the time in which he can perform and if he has undertaken difficult or inconvenient obligations, a court of law cannot relieve him of the consequences of his erroneous judgment. He is bound to perform the contract within the time specified and if he does not, the owner has the right to stop further performance of the work and hold the contractor liable for any loss or damage occasioned by his being required to complete the building.[1]

Most of the standard forms of construction contracts contain provisions for liquidated damages for delayed performance and these contract provisions will generally be enforced except in cases where the stipulated damages bear no relation to the actual damages sustained and are in the nature of a penalty rather than compensation for the actual damages sustained.[2]

(1) Tylor et al. v. Thomas et al., 78 N.E. 2d 80, Municipal Court of Cleveland, Ohio, Jan. 13, 1948, and cases there cited.
(2) United States v. Kanter, et al., 137 F (2d) 828.

FIELD AND OFFICE



Note: Dotted lines show solution of second example in text. Roman numerals indicate the steps.
(Copyright 1948, O.S. Beard)

Performance Chart Yields Quick Haulage Time Figure

It is no longer necessary to guess at the traveling time of hauling equipment used on construction jobs, or to go through hours of tedious calculations in making an estimate on a job involving hauling. By use of the chart illustrated, this calculation can be done in minutes instead of hours that normally are required for this work on construction projects.

The chart is based on an equation involving gross weight, horsepower, total tractive resistance (algebraic sum of rolling and grade resistance), distance, total efficiency (engine to ground), speed, and traveling time. All of these quantities except traveling time can be ascertained on the job by the equipment owner or operator. Grade resistance is a plus or minus quantity, depending upon whether the equipment is going down or up hill. As used here it is the same as percent grade. Rolling resistance is equal to the down-hill grade at which the equipment will roll free at a constant speed.

On the chart a single efficiency scale is utilized so that all friction losses can be compensated for. The operator of the equipment could time a few test runs and work backwards on the chart to determine the actual total efficiency, a figure which could be used with confidence in later calculations. Of course it would be most helpful if the manufacturers would recommend efficiency for various conditions, based on tests.

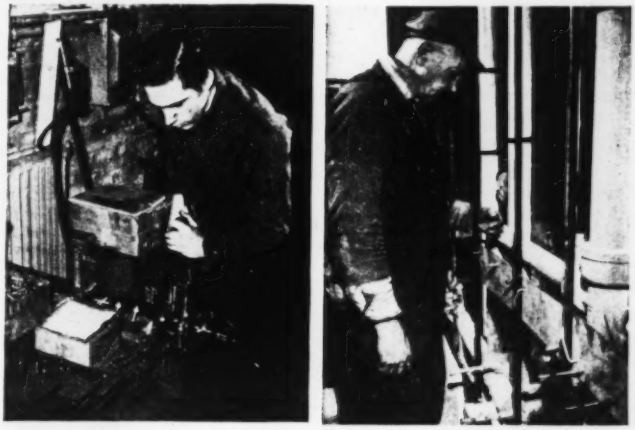
The following are two examples that can be worked out on the chart: I. Gross Weight (W), 80,000 lb.; grade (G) 5 percent; rolling resistance R_a, 4 percent; horsepower (hp), 150; efficiency (E), 85 percent; distance (D), 1000 ft.

Travel time, from chart: 1.7 minutes.

II. W, 40,000 lb.; G, −2 percent; R_a, 8 percent; hp, 150; E, 60 percent; D, 1500 ft.

Travel time, from chart: 1.2 minutes.

The nomograph is copyrighted by the author.—ORVILLE S. BEARD, *graduate in construction, University of Mississippi, University, Miss.*



PLUMBING INSTALLATION SIMPLIFIED—An automatic welding gun fixed female-threaded studs to anchor plates for installing bathroom and plumbing fixtures in three large New York housing projects. With a simple loading fixture and template, operators averaged 30 six-stud units per hour. At right, the anchor plates are fastened to wall studs with U-bolts. The toilet tank will be suspended from female studs in foreground, wash basin from three studs in background. J. J. Gribbins Co., Long Island City, N. Y., produced the plates to specifications set by James W. Ellis of Lipsky & Rosenthal, plumbing and heating contractors of Brooklyn. (Nelson Stud Welding Division, Morton Gregory Corp., photos).

Crane Floats on Life Rafts

When a construction job in a location inaccessible to normal floating equipment was undertaken recently, four surplus navy metal life rafts were pressed into service to support a crane capable of lifting 10½ tons.

The job was part of a $500,000 remodelling contract on the National Container Corporation's Big Island, Va., plant, on the James River near Lynchburg. New flood gates and guide gates were to be installed—the gates, cast at the site, weighing between 4½ and 10½ tons.

Bert W. Broom, superintendent for F. L. Showalter, Inc., contractor, designed the crane to be set on the metal rafts. The crane was used to install all the gates, and the same rig was used for driving all sheet piles. A gallows frame assisted in taking the load when the 10½ ton gates were being placed.

The entire rig is salvageable, and can easily be transported in trailers.

READER COMMENT

Beams Twisted by Formwork

Sir: During the construction of a building consisting of short-span reinforced concrete slabs supported on steel beams designed by this office, we observed that a marked rotation of the beams had taken place during the pouring of the concrete arches and beam fireproofing. This rotation varied with different beams, but webs were out of perpendicular in some cases in excess of ten degrees.

Investigation has led to the conclusion that the standard method of hanging forms in the New York area can and does cause serious rotation in steel beams. The engineering and architectural professions are apparently unaware of this.

A test pouring of a beam haunch with adjacent slabs, reproducing the method of hanging the forms, was made. This consisted of suspending the wood joists carrying most of the load from a point outside of the beam flange. The rotation of the beam was easily observed. The figured stresses produced were several times that caused by the weight of the slab alone.

There is good reason to believe that similar rotation has taken place in numerous other projects of similar construction. It is of course necessary to remove part of the beam fireproofing to observe this condition. The writer is preparing a report, in conjunction with Architects Lincoln & Tumey, on the investigations made.

JULES LEWIS
Consulting Engineer
New York 18, N. Y.

Suspension Bridge Aerodynamics

Sir: Concerning the oscillations of the Norwegian suspension bridges (ENR Jan. 20, 1949, p. 96; March 31, 1949, p. 55) it should be noted that Dr. Arne Selberg failed to mention the oscillations of these bridges in his previous publications. In his book, "Design of Suspension Bridges", Trondheim, 1946, he refers also to the paper, "Flexible Suspension Bridges for Norwegian Highways", by O. Stang, 1934 (in Norwegian), and gives a photograph, data, and 14 pages of computations for the Fyksesund bridge, without a word about the oscillations of this and the other Norwegian bridges. S. Kasarnowsky (Publications, IABSE, Vol. VI, 1940-41, p. 136) gave data on the Ronosfoss bridge (span 600.39 ft.; depth of girders 15.75 in. compared to 17.72 for Fyksesund) and pointed out especially that this and all other, similarly slender, Norwegian suspension bridges were fully satisfactory. In his book, Dr. Selberg emphasized the advantages of these small rolled sections.

In view of the great interest of the profession in the aerodynamic behavior of suspension bridges since 1940, such incomplete reporting on the most slender bridges of the world is deplorable. The authors by remaining silent about the actual behavior of the bridges not only defeated the purpose of their scientific publications, but also caused others to do useless work resulting in faulty conclusions.

LOUIS BALOG
Consulting Engineer
Binghamton, N. Y.

Too Many Student Chapters?

Sirs: I am surprised by the editorial, "Too Many Student Chapters" which appeared in the March 10, 1949 issue. This seems to be another illustration of a well-known human trait—from the point of view of those inside, there is seldom room for more, however meritorious the more might be.

Why do we insist on provinciality for engineers? Had the colonies continued to insist on provinciality we would now have no nation. Unless engineers consider themselves engineers rather than unit engineers, we can have no profession of engineering. Few advocate that engineers be registered as civil engineers rather than engineers. Why, then are we to be professionally conscious as civil engineers rather than as engineers?

There can be no question of the great importance of the technical societies and the valuable and essential work that they do to improve the technical side of the work of engineers in the several engineering branches, but the effectiveness of their separate efforts toward the development of professional consciousness, improvement of the status of the engineer in the view of the general public, or defense of him against encroachments from groups recently made powerful by the federal government is another matter.

If engineering is ever to become a profession and be recognized as such, the combined efforts of all branches acting as one unit is necessary and this unity must start among the undergraduates of our engineering colleges.

In the smaller schools, general organizations of engineering students seem to work very well. But in the larger ones where wealth of equipment and professional eminence among professors are found, the consciousness of the student is of the branch.

In the larger institutions a federation of the technical societies may be the answer. The technical council in the larger cities is an example in point. The technical societies might well organize an over-all engineering society, with nominating committees having representatives from all of the technical student chapters, and elect officers-at-large. Combined meetings, not too frequent when the subject is broadly professional or non-technical in nature could develop engineering consciousness and the technical field could be left as it is. This should not encroach on the technical society student chapter effort and all members could at the same time be members of professional student chapters.

Let me emphasize that editorials such as the one cited are narrow and not for the best interests of the engineering profession. The general registration of engineers offers a cementing material by which the original error of the first and subsequent secessions of technical groups may be righted. A broad view of engineering at the time of the first secession might have maintained a general professional society and have left the technical groups to organize as subsidiaries.

J. R. SHANK
Chairman, Educ. Comm. O.S.P.E.
Columbus, Ohio

Why Any Stamp Change?

Sir: As an ex-stamp collector, having engaged in it at the time when changes in issue were few and the sale of stamps had not become largely a racket at the expense of the U. S. government, I am much interested in the letter of W. N. Carey of the ASCE in ENR March 31, p. 54.

Not so long ago a change in stamps once in ten to twenty years was all we had or that was required. At the behest of stamp dealers, augmented no doubt by a recent presidential influence, a new stamp issue comes out now about every month. This costs money and adds to our billions of dollars in taxes.

We have had a mother's stamp, perhaps not as yet an infant's but this will probably come. If we have an engineering stamp, I am sure we shall have a mortician's stamp before long, also a realtor's, as both of these claim professional status.

GEORGE R. WADLEIGH
Consulting Engineer
New York, N. Y.

BOOK REVIEWS

Industrial Waste Treatment

TREATMENT & DISPOSAL OF INDUSTRIAL WASTE WATERS—By B. A. Southgate. 327 pp. H. M. Stationery Office, York House, Kingsway, London, W. C. 2. 12s. 6d. (12s. 11d. by post). Obtainable through Stechert, Hafner, Inc., 31 East 10th St., New York 3, N. Y.

Written by the director, this text details much of the work of the Water Pollution Research Laboratory since its establishment in the British Department of Scientific and Industrial Research in 1927. It also summarizes the principal findings of investigators in other parts of the world.

The first two chapters describe results that may be expected when various industrial wastes are discharged to surface waters and the influence these discharges may have on quality of water for domestic and industrial use. Chapter three outlines effects of polluting substances on fishing industries; and chapters four and five set forth modern methods of sewage and industrial waste treatment.

The remainder of the text examines methods employed to purify wastes from particular industries. Wastes covered are: Mining and coal; gas-works and coke-oven; metallurgical, including steel, copper, aluminum and electroplating; and textile, leather, paper, milk, slaughter-house, fish, fermentation and canning.

Various methods of treatment for each type of waste are explained and treatment results are summarized in tables permitting the reader to judge success of the purification process.

For Foremen and Inspectors

CIVIL ENGINEERING FOR THE CLERK OF WORKS—By Vernon C. Whiting and K. Mills. 152 pp. Longmans, Green and Co., London, New York & Toronto. $2.75.

Outside of New England and parts of eastern Canada the British term "clerk of works" is seldom heard on this continent, nor is there any individual on construction jobs here who has the variety of duties and responsibilities. In this country those duties are distributed among superintendents, foremen and inspectors.

This little book contains a variety of information on methods of laying out construction work, on taking quantities off of plans and on construction materials, such as is needed by foremen and inspectors. As the book relates to British practices, some of it is not applicable here. There also is considerable information on construction plant and equipment, including an equipment application chart compiled originally by R. G. LeTourneau, Inc. of Peoria.

About Zoning

ZONING LAW AND PRACTICE—By E. C. Yokley, 514 pp. The Michie Company, Charlottesville, Va. $12.

This is the best book on zoning laws and their administration that has appeared since Edward M. Bassett's "Zoning" was published. It covers the whole field from the drafting of zoning ordinances to their administration by boards of appeal or boards of adjustment, including the forms to be used by administrative officers.

A timely chapter is one on airport zoning giving extracts from the most recent decisions on that new field of zoning activity.

References to all court decisions discussed in the text are given, and in addition there is a 35-pp. alphabetical listing of all important decisions bearing on the subject of zoning.

Parking for Cities

PARKING FOR SMALLER CITIES—138 pp. Published by Associated Retailers of Indiana, 808 State Life Bldg., Indianapolis 4. $2.50.

PARKING LOT OPERATION—By Charles S. LeCraw, Jr. and Wilbur S. Smith, 114 pp. The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.

THE TRAFFIC DESIGN OF PARKING GARAGES—By Edmund R. Ricker. 182 pp. The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.

These three publications relating to parking of motor vehicles which have appeared in recent month supplement information given in "Parking", published by the Eno Foundation in 1946, and "Parking Manual", also published in 1946 by the Automotive Safety Foundation, Washington, for the American Automobile Association. The latter organization assisted in the preparation of "Parking for Smaller Cities", as did the Public Roads Administration. This latter book gives information on parking meters not contained in the earlier publications.

For those interested in the legal aspects of parking, a pamphlet entitled "Municipal Provisions of Parking Facilities—State Laws and City Projects", Research Monograph 44, Bureau of Business Research, Ohio State University, Columbus, Ohio ($1.25) is more comprehensive in its coverage of that subject than any of these other publications.

Miscellaneous Notes on Booklets and Reprints

TO AID USERS AND MANUFACTURERS of building materials, the American Standards Association, 70 East 45th St., New York 17, has issued a booklet entitled "Nationally Recognized Standards in State Laws and Local Ordinances," which sells for $1. Subjects discussed are the economic effect of lack of uniformity in acceptance of nationally recognized codes and standards, adoption of national codes by reference, and the constitutional and legal problems surrounding the use of national codes and standards by states and municipalities.

TECHNICAL BULLETIN No. 8 of the Housing and Home Finance Agency—a special issue devoted to good design and construction practices for houses—contains many excellent suggestions for cutting construction costs. Produced by the Division of Standardized Building Codes and Materials, under the direction of Leonard G. Haeger, to stimulate interest in new methods of planning and erection, the 245-page booklet presents articles on reducing costs through functional code requirements, modular coordination, planning before designing, use of wood roof trusses, elimination of basements and proper application of power tools. It can be obtained from the Housing and Home Finance Agency, 1626 K St., N.W., Washington 25, D. C.

CAUSES OF CHURCH FIRES and design precautions to prevent them are summarized in a 40-pp. booklet, which can be obtained from $1 from the National Fire Protection Assn., 60 Batterymarch St., Boston 10, Mass. Prevention methods discussed include correction of structural defects, such as by including fire stops in walls, ceilings and attics and by inclosing stairways, protection of furnace rooms with fire-resistive materials, and provision of sprinkler protection, fire extinguishers and automatic detection equipment.

ENGLISH TRANSLATIONS of three papers prepared by members of the Swedish Cement and Concrete Research Institute for the meeting of the

International Association for Bridge and Structural Engineering held last fall have been published by the institute (Care of the Royal Institute of Technology, Stockholm, Sweden). They are: Investigations on Formation of Cracks in Reinforced Concrete Structures; Differential Equations for Calculation of Vibration Produced in Load-Bearing Structures by Moving Loads; and Effect of Dynamic Forces on Structures. The price of each is 1.5 kr. A fourth pamphlet on Studies on the Properties of Fresh Cement contains only a brief summary in English of the two papers contained in the pamphlet.

New Engineering Books

WATER SUPPLY ENGIEERING — Fourth Edition—By Harold E. Babbitt and James J. Doland. 637 pp. McGraw-Hill Book Co., New York and London.

PERSONNEL SELECTION TEST AND MEASUREMENT TECHNIQUES—By Robert L. Thorndike. 358 pp. John Wiley & Sons, New York; Chapman & Hall, London. $4.

1948 PROCEEDINGS AMERICAN SOCIETY FOR TESTING MATERIALS—Volume 48. 1354 pp. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

ELEMENTS OF APPLIED HYDROLOGY—By Don Johnstone and William P. Cross. 275 pp. The Ronald Press Company, New York. $5.

CHAMBER'S TECHNICAL DICTIONARY—Revised Edition with Supplement — By C. F. Tweney and L. E. C. Hughes. 976 pp. The Macmillan Co., New York. $6.50.

A STUDY OF THE PORT OF NEW YORK AUTHORITY—By Frederick L. Bird. 191 pp. Dun & Bradstreet, Inc., New York. $5.

RAHMENFORMELN: GEBRAUCHSFERTIGE FOREMELN—by Adolf Kleinlogel. 460 pp. Wilhelm Ernst & Sohn, Berlin, 25 DM.

PERSONNEL MANAGEMENT—Fourth Edition—By Walter Dill Scott, Robert C. Clothier, and William R. Spriegel. 648 pp. McGraw-Hill Book Co., New York 18, and London. $4.50.

Reports and Pamphlets

AIRPORT RUNWAY BASE CONSTRUCTION WITH EMULSIFIED ASPHALT AND SAND —Technical Bulletin No. 140. American Road Builders' Association, 1319 F St., N.W., Washington, D. C.

REPORT OF COMMITTEE ON LIME-SOIL STABILIZATION—Technical Bulletin No. 147. American Road Builders' Association, 1319 F Street, N.W., Washington, D. C.

STABILIZATION OF SOIL BASES—Technical Bulletin No. 149. American Road Builders' Association, 1319 F St., N.W., Washington, D. C.

TYPICAL DESIGNS OF TIMBER STRUCTURES —1949 Edition—Timber Engineering Co., 1319 18th St., N.W., Washington 6, D. C. $10. (Limited free distribution to consulting engineers and architects.)

LYNCHBURG DISTRIBUTION ROAD—Prepared for the Virginia Department of Highways, by Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, N. Y.

PROCEEDINGS OF THE THIRTY-FOURTH ANNUAL ROAD SCHOOL—Extension Series No. 66. The Engineering Extension Department, Purdue University, Lafayette, Ind.

TEN YEARS IN HOUSING—1947-1948 Annual Report. Memphis Housing Authority, 264 North Lauderdale, Memphis, Tenn.

HOUSING IN CANADA—Vol.4, No. 1—A Factual Summary. Central Mortgage and Housing Corporation, Ottawa, Canada.

1948 SUPPLEMENT TO BOOK OF A.S.T.M. STANDARDS INCLUDING TENTATIVES—Part II Nonmetallic Materials—Constructional. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

SYMPOSIUM ON USEFULNESS AND LIMITATIONS OF SAMPLES. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. $1.

AN EXPERIMENTAL STUDY OF SUBMARINE SAND BARS—Technical Report No. 3, Beach Erosion Board, Office of the Chief of Engineers, Department of the Army, Washington, D. C.

PARKING LOT OPERATION—By Charles S. LeCraw, Jr., and Wilbur S. Smith. The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.

ORGANIZING THE CONSTRUCTION INDUSTRY FOR MASS MARKETS. Prepared by Miles L. Colean, Economic Consultant. The Construction Industry Information Committee of the Producers' Council, Inc., Rm. 706, 815 Fifteenth St., N.W., Washington 5, D. C.

NATIONAL BUILDING CODE—1949 Edition. National Board of Fire Underwriters, 85 John St., New York 7, N. Y.

1948 CALIFORNIA PLANNING PROGRESS—1948. California Chapter American Institute of Planners.

SPECTRAL-TRANSMISSIVE PROPERTIES AND USE OF EYE-PROTECTIVE GLASSES.—U. S. Department of Commerce, National Bureau of Standards Circular 471. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 20c.

MAJOR STREETS—First of a series of reports on a comprehensive plan for Saint Louis. City Plan Commission, Saint Louis, Mo.

FUNDAMENTALS OF LIGHT AND LIGHTING —Bulletin LD-2—By Walter Sturrock and K. A. Staley. Lamp Department, General Electric Co., Nela Park, Cleveland 12, Ohio. $1.

INDUTRIAL PLANT DISTRIBUTION SYSTEMS. Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

SUBSURFACE SEWAGE DISPOSAL—Bulletin No. 23—By John E. Kiker, Jr. Florida Engineering and Industrial Experiment Station, University of Florida, Gainesville, Fla.

PROCEEDINGS OF THE THIRD SHORT COURSE AND CONFERENCE AIRPORT MANAGEMENT AND PLANNING—Bulletin No. 109. Texas Engineering Experiment Station, Agricultural and Mechanical College of Texas, College Station, Tex.

PROCEEDINGS OF THE FOURTH ANNUAL AIR CONDITIONING CONFERENCE—Bulletin No. 110. Texas Engineering Experiment Station, Agricultural and Mechanical College of Texas, College Station, Tex.

LIME HANDLING, APPLICATION AND STORAGE. National Lime Association, Washington 5, D. C.

PROCEEDINGS NATIONAL CONFERENCE ON INDUSTRIAL HYDRAULICS — Vol. II. Armour Research Foundation, Illinois Institute of Technology, Chicago 16, Ill.

STREET CAR TRACK REMOVAL and Repavement for Trolley or Motor Bus Operation: Seal Coating of Asphalt Pavement: Chemical Eradication of Weeds in Highway Right-of-Ways—Technical Bulletin No. 153. American Road Builders' Association, 1319 F St., N.W., Washington, D. C.

SPRING BREAK-UP STUDIES OF VIRGINIA PAVEMENTS—Technical Bulletin No. 151. American Road Builders' Association, 1319 F St., N.W., Washington, D. C.

THE EFFECT OF MIXING ON THE ASPHALT CONTENT OF PAVING MIXTURES—Technical Bulletin No. 152. American Road Builders' Association, 1319 F St., N.W. Washington D. C.

PLANNING AND FINANCING OUR HIGHWAYS: Policies on Highway Planning, Taxation, Finance and Administration. National Highway Users Conference, Inc., 938 National Press Building, Washington 4, D. C.

WORK OF THE PUBLIC ROADS ADMINISTRATION 1948—Annual Report for the Fiscal Year 1948. Public Roads Administration, Federal Works Agency, Washington 25, D. C.

TECHNION YEARBOOK-1948. Published by the American Technion Society, 154 Nassau St., New York 7, N. Y.

"Give us the tools . . ."

The 81st Congress Can Halt the Administration's *SOCIALIST PROGRAM*

In his speech at Massachusetts Institute of Technology, Winston Churchill said that America's possession of the atomic bomb is all that has kept Soviet Russia from overrunning Europe and bombing London.

Our State Department knows that there has been another deterrent to aggressive warfare by Russia and a deciding one. That deterrent is the superior industrial strength of the United States. But once Russia approaches our industrial strength, then watch out! For Stalin or no Stalin, there will be trouble. Therefore, the simple table below is worth every American's careful reading. It shows in percentages what Russia did with her national income in 1948 and what we did with ours:

	USSR	USA
Civilian use	60%	79%
New capital equipment and public works	21%	12%
Foreign aid		2%
Defense	13%	5%
Building of inventories and war stock-piling	6%	2%

These figures for Russia come from *The* (London) *Economist*, Britain's influential economic journal.

These figures are estimates based on information from behind the Iron Curtain, and so cannot be checked directly. But they fit with what is known of Russian development.

The table shows that Russia is straining every resource to build up its industrial strength. When Russia's effort is measured in *dollars*, and compared to ours, the figures show:

Where we spent $20 to $21 billion for new industrial plants and equipment last year, the Russians spent $12 to $14 billion.

But while we used about $9 billion of this to *replace* old equipment, the Russians spent no more than $2 billion for replacing old equipment. The Russians had much less worn-out and obsolete equipment to replace. They could concentrate their efforts on expanding their industries and buying new equipment.

So—we used only $11 to $12 billion to *expand* our industries.

And the Russians used almost as much to expand theirs—$10 to $12 billion.

Russia is gaining industrial strength as fast as we are—and may soon be gaining faster. The more she gains and the faster she gains on us, the greater is the danger of war.

continued on next page

American industry is pushing modernization and expansion hard. It is doing an heroic job. McGraw-Hill's recent survey* shows that *industry* already has in hand plans to build plants and buy equipment in the next five years adding up to $55 billion. Industry plans that investment—*and much more—if it can get the money.*

On those plans of *industry* depend *our* national security.

If these plans of ours are cut back, the Russians will be years closer to their goal of industrial equality—the strength that they need to wage aggressive war successfully.

But more and more our industry's plans are being menaced by socialist policies in Washington. The President continues to urge a further increase in the tax on corporate profits, even though federal taxes alone now take 38 cents of every dollar of profit. He wants $3 billion more in taxes on corporate profits now, plus added personal taxes.

Last year corporations spent almost two-thirds of their profits—about $13 billion—for new plant and equipment. This year corporation profits will be lower than last year's $21 billion, perhaps by 20 per cent. Subtract a fifth or more from last year's profits. Then adopt the President's proposal and take $3 billion more in corporate taxes and you raise havoc with planned expenditures for new plant and equipment.

Approval by Congress of the President's tax program would cut industry's program of plant and equipment development by a third or more. That means a major blow to our prosperity as well as our national security. For as capital investment goes, so goes general prosperity.

Further serious damage would be done by Congressional approval of the President's industry-control bill. The so-called Stability Act of 1949 (the Spence Bill) would severely check industrial progress. That bill would put the federal government in the business of providing the added industrial capacity which the tax program would prevent private industry from doing for itself. It would be hard to conceive a better and surer way to dry up private investment in new plant and equipment. For every dollar of government investment will scare away many times more dollars of private investment. People will not want to risk their money in businesses competing with the U. S. Treasury. At the same time it will attack private investment in another way. It means that government would spend your income for you instead of allowing you to spend or invest for yourself. That is the high and quick road to socialism.

American industry needs right now great courage and incentives if it is to carry out its tremendous building program. It needs also a release from the program of a socialist administration in Washington with its systematic discouragement of enterprise and risk taking.

Above all, industry needs assurance by the actions of the 81st Congress itself that there is a future in this country for a system of dynamic capitalism, functioning in a free society. By acting now to strengthen the American people's faith in their industrial system, by providing needed incentives for management and investors, by protecting industry's capacity to buy new equipment, the 81st Congress can sustain American industrial progress and keep us united and strong.

But if we kill freedom of industrial planning and action by unneeded taxes and government controls we put ourselves—and our friends all over the world—in dire peril.

Nothing would please the Communists more.

James H. McGraw, Jr.

President, McGraw-Hill Publishing Company, Inc.

***A complete report on our national survey may be obtained by writing McGraw-Hill Publishing Co., 330 West 42nd St., New York 18, N. Y. This is one of a special series of editorials on industry's needs for new plants and equipment.**

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"Dyn-O-Mite" Gun *alone* greases up to 55 bearings without reloading. Weighs only 2 lbs. yet gives pressures up to 10,000 lbs. with new-type, push-handle action. Makes overhead and out-of-the-way fittings easy to reach *with whatever pressure you need.*

"Red-A" Bucket *alone* gives fast volume delivery of grease with easy, one-hand pump action. Delivers up to 3,500 lbs. pressure. Flexible 6-ft. pressure hose couples directly to fittings, withstands 10,000 lbs. of pressure. Hose assemblies available for all types of fittings.

"Red-A" Bucket and "Dyn-O-Mite" Gun *used in combination* give you a quick choice of either high pressure or volume delivery. The gun is quickly attached to the hose and you pump either the Bucket or the Gun, depending on how much pressure you need.

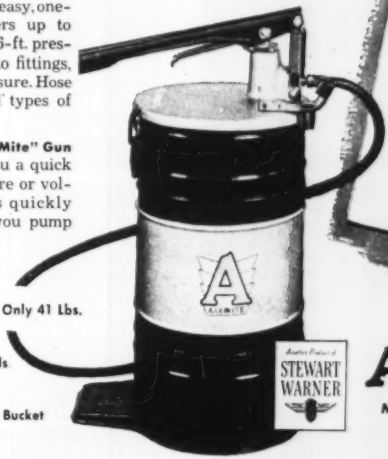
Write today for full details, plus a *free* copy of our informative booklet, "*Correct Lubrication in the Construction Industry*," which gives you valuable facts on the proper selection, handling, and application of lubricants for a wide variety of construction machinery. Alemite, 1821 Diversey Parkway, Chicago 14, Illinois.

★ Light, Flexible Hose Couples to Gun or Directly to Grease Fittings.

★ Long, Thin Extension Reaches Deep-Seated Bearings!

★ Easy, One-Hand Push Operation— No Strain, No Fatigue!

★ Greases as Many as 55 Bearings— Without Reloading!



★ Lightweight Bucket Weighs Only 41 Lbs. When Full!

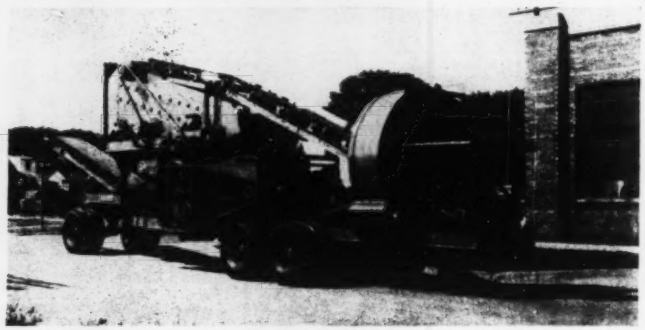
★ Oval-Shaped Container Holds 27 Lbs. of Grease!

★ Off-Set Pump Handle Keeps Bucket from Tipping!

ALEMITE

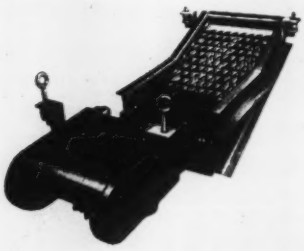
MODERN LUBRICATION METHODS THAT CUT PRODUCTION COSTS

NEW PRODUCTS



Super Crusher

A new super secondary crushing, screening and loading plant features a 30-in. twin dual roll crusher—a 2-stage reduction machine consisting of two double roll crushers mounted on a single set of shafts and bearings. One set of rolls receives the coarse material from the top deck of the screen and acts as a roughing crusher. About half of the material will be crushed to finish size. The second set of rolls of larger diameter acts as a finishing machine set to reduce the crushed material to specification size. The twin dual rolls relieve the jaw crusher of much of the crushing that otherwise would be required of the primary breaker. For full description write to —Universal Engineering Corp., Cedar Rapids, Iowa.

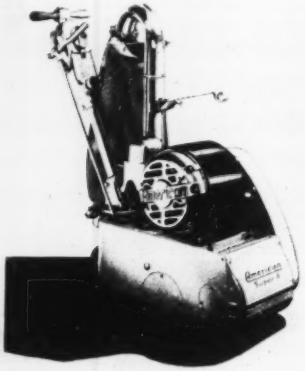


Vibrating Screen

A new line of vibrating screens for rough sizing are made up with stepped, punched plates with tapered elongated openings. The screen area is activated by a vibrating motor featuring variable control of material flow. This provides a 2-purpose piece of equipment, a vibrating screen and a rheostat-controlled vibratory feeder to increase efficiency and capacity of crushers and fine grinders, and to prevent damage to belt conveyors by allowing fines to cushion the lumps.—Syntron Co., 328 Lexington, Homer City, Pa.

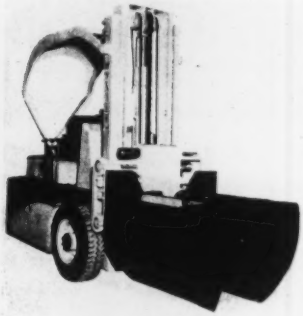
New Building Brick

"Chem-Brick" is a building brick new in formula and process of manufacture. It is a hard, dense, silica-base brick made by a new, closely controlled process that assures uniform quality, strength and size plus proper product curing. "Chem-Brick" is a radically new all purpose brick for residential and commercial buildings . . . partitions, walls, chimneys and back-ups —that meets the A.S.T.M. grade SW specifications for first quality brick.—Detroit Brick and Block Co., St. Jean Ave., Detroit, Mich.



Quick Floor Sander

It is claimed tests show that this "Super 8" sander is twice as fast as standard 8-in. machines, greatly reduces time and costs to the contractor. It is lever type powered by a specially designed 2-h.p. American motor, 1750 r.p.m. There are only two points to be lubricated and these only semi-annually. All bearings are lifetime lubricated. — The American Floor Surfacing Machine Co., Toledo, Ohio.

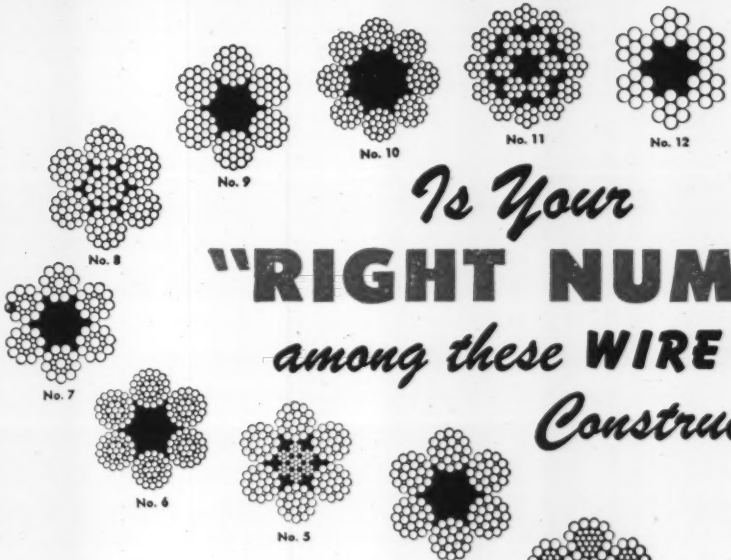


Lift Truck Clamshell

Here is a clamshell bucket of $\frac{7}{8}$-cu. yd capacity which is said to be the only tool of its kind for use with a lift truck. It is available only for the Hyster 40 (2-ton capacity) lift truck. Operated by a lever at the driver's right, the clamshell opens and closes by means of the same hydraulic power that spreads and contracts the arms of the standard Load-Grab (palletless materials handling attachment). Such bulk materials as sand, grain, chemicals, fertilizer, insulating materials, etc., are effectively handled by the tool. A standard lifting height of 8½ ft., to the bottom of the closed bucket, makes it a valuable aid in such operations as loading and unloading trucks and railroad cars.—Hyster Co., Portland 8, Ore.

Electric Drill Hammer

"Hamer-Dril" is the trade name of a new electric drill for brick, concrete and stone in walls, floors and overhead. It is an adaptor which when chucked in any ½-in. electric drill, any speed, converts it into a compact, efficient power hammer suitable for any purpose where rapid, moderately heavy hammering is required. The force with which it strikes is the same, whatever the speed or power of the electric drill or other driver.—Hamer-Dril, Box 158, Planetarium Station, New York 24, N. Y.



Is Your "RIGHT NUMBER" among these WIRE ROPE Constructions?

Many factors determine the ultimate service you may expect from a Wire Rope. Among these are size, grade, construction and quality. But equally important is selecting the correct combination of these and other vital factors. Unless a rope fits the particular job to be done, the best results will not be had.

As "HERCULES" (Red Strand) Wire Rope is made in a wide range of both Round Strand and Flattened Strand constructions—Preformed and Non-Preformed—it offers the 'right number' for *any* heavy duty job.

And our Engineering Department is always ready to help you select the rope that will give you the most service for each dollar of its cost. Call on us anytime.

No. 1—Style B Flattened Strand—Hemp Center
No. 2—6 x 41 Round Strand—Metallic Core
No. 3—Style G Flattened Strand—Hemp Center
No. 4—6 x 19 Filler Wire Round Strand—Hemp Center
No. 5—6 x 19 Filler Wire Round Strand—Wire Rope Center
No. 6—6 x 37 Round Strand—Hemp Center
No. 7—6 x 19 Seale Round Strand—Hemp Center
No. 8—6 x 19 Round Strand—Metallic Core
No. 9—6 x 19 Warrington Round Strand—Hemp Center
No. 10—8 x 19 Filler Wire Round Strand—Hemp Center
No. 11—18 x 7 Non-Rotating
No. 12—6 x 7 Round Strand Haulage Rope—Hemp Center.

All of these constructions are available either Preformed or Non-Preformed.

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Here's a short cut to long life and low maintenance for highways, airport runways and other concrete pavement: *protect each and every joint with Flintseal.**

You'll get a smooth, neat joint that *far* outlasts old-fashioned materials. And you get a trouble-free, *positive* seal.

Why? Because Flintseal *stays* resilient. It won't flow . . . even in hottest weather. It won't become brittle and crack . . . even on the coldest days. As a result, Flintseal forms a tight, lasting bond to concrete that maintains a *positive* seal throughout repeated cycles of expansion and contraction of the slab.

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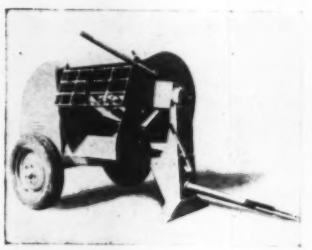
For Dowels and Tie Bars

This machine that mechanically installs dowels and tie bars in concrete pavements is usually placed on the forms behind the finishing machine. It is a gas electric unit and with hydraulic lift controls it more than keeps up with the fastest paver operation. Two standard widths—adjustable 20 to 25 ft. for full width paving, and 10 to 15 ft. for half width.—FLEX-PLANE CO., WARREN, OHIO.

Acoustical Tile

New product named "Fissuretone" is an incombustible rock wool acoustical tile with a fissured surface. Supplied with a factory-applied coat of off-white paint finish with efficient light-reflecting properties. Designed for functionally efficient acoustical ceilings. — CELOTEX CORP., 120 So. LASALLE ST., CHICAGO 3, ILL.



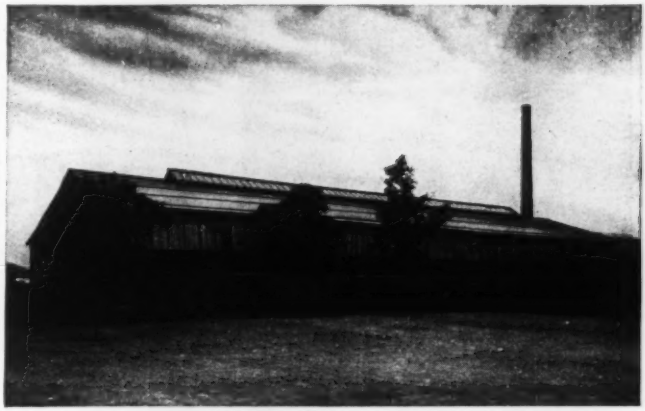
Plaster Mixer

A new plaster mixer is of 6 cu.ft. capacity. It is driven by a Briggs & Stratton engine through a heavy roller chain drive, and is equipped with a bag shelf and a bag splitter. Fabricated of steel throughout, it has disc-type wheels with Timken bearings and pneumatic tires. A telescopic towing bail is provided.—MULLER MACHINERY CO., INC., METUCHEN, N. J.

Portable Electric Saw

All-purpose light weight saw has 6½-in. diameter blade with a ⅝-in. standard round hole. Depth adjustment can be accurately regulated for any depth from ⅛ to 2 in. Saw is designed for one-hand operation and has trigger switch located on handle. Turbine fan draws air through motor and discharges at front, blowing dust off line of work. Saw blade housing has separate rear discharge outlet so that no dust from blade can work back into motor. Guarded blade is exposed only

How to cut your building estimates without "cutting corners"



Now you can offer your customers permanent buildings at a price they can afford!

Luria buildings require no intricate, space-consuming trusses. The heavy steel framework is entirely self-supporting and all field connections are designed for bolting. This permits fast, economical erection without welding, cutting or drilling.

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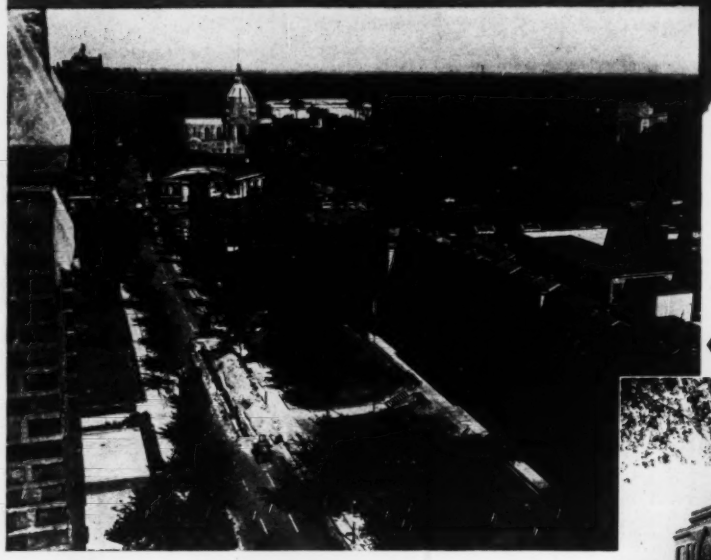
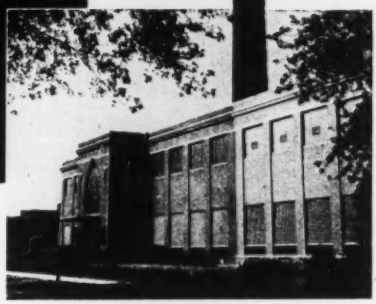




A partial view of the area served

Fairmount Water Pumping Station, Cleveland, Ohio

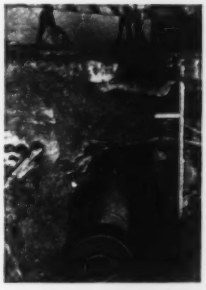
THE EUCLID-CARNEGIE-EAST 105th STREET district is Cleveland's second largest commercial community. This area is given over to office buildings, hotels, stores, restaurants, theatres, churches and apartment buildings.

The virtual absence of smoke throughout this forty block area is attributable to the fact that the district enjoys Central Heating. This great asset to the community was made possible by the foresight and efficiency of the city's water department.

This Central Heating system originates at the Fairmount Municipal Pumping Station about a mile away from the heart of the business district served. Instead of wasting exhaust steam after process and plant heating requirements have been met, Fairmount puts its steam to work again. By controlling it and supplementing it with some live steam, the city provides an adequate steam supply for this important community.

Over 237,000,000 pounds of this "ready-made heat in its most convenient form" is delivered annually via Ric-wiL Hel-cor Insulated Pipe Units and Ric-wiL Cast Iron and Tile Conduit Systems to 131 large customers in the area.

For full information on Ric-wiL Insulated Piping for Central Heating and for Industrial Pipe Distribution Systems write The Ric-wiL Co., Dept. 12-H.



No Detour Necessary

Carnegie Avenue carries over 28,000 cars and buses daily. This heavy traffic flow was not disturbed when a Fairmount Steam main in Ric-wiL Hel-cor Insulated Piping was installed under the busy thoroughfare, 21' long Ric-wiL Units through a tunnel formed of 36" diameter Armco Corrugated Steel Pipe, which had been jacked through the ground under the street.

RIC-WIL

INSULATED PIPING SYSTEMS

THE RIC-WIL COMPANY • CLEVELAND, OHIO

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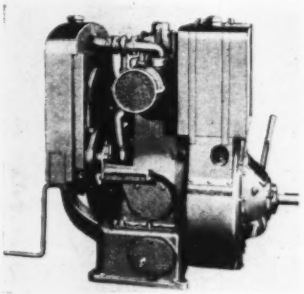
when it cuts into the wood. Overall dimensions are 10 in. long, 8¼ in. wide and 9⅜ in. high. Powered by 115-volt ac/dc motor operating at speed (load) of 3200 rpm.—PORTER-CABLE MACHINE CO., SYRACUSE 8, N. Y.

Small Sized Tractor

Crawler type tractor weighing 3,200 lb. and measuring 43 in. in width is adaption for civilian use of Clark airborne tractor used in World War II. Tractor is equipped with forward and reverse clutch used in connection with a four-speed transmission. Tractor is powered by 31-hp. Continental motor. A winch with a three-ton pulling capacity is available.—U. S. TRACTOR CORP., WARREN, OHIO.



10 hp. Diesel Engine

After extensive development work and experimental pilot model production, the manufacturer announces a new 10-hp. diesel engine. Known as Type 4FS-1, it is an extra heavy duty vertical type, four-cycle, single cylinder, mechanical injection engine. It has a 4½-in. bore and 5½-in. stroke and is conservatively rated at 10 hp. at 1,200 rpm. and 15 hp. at 1,800 rpm. Production is expected in the near future of two and three cylinder models of the same bore and stroke with proportionately higher horsepower ratings. The 4FS-1 engine is now available for delivery.—NORDBERG MFG. CO., MILWAUKEE 7, WIS.

Metal Cleaner

An improved Kelite Formula 504 for removing paint, sludge and light carbon from automotive and aircraft engines and parts, and for similar metal cleaning has been introduced. The manufacturer claims the product is safe on all metals, including cadmium and zinc, and will take a great deal of contamination and still clean. It has a low evaporation rate and will not burn up to 140° F. It is used at normal room temperatures. Formula 504 is packed in 55 and 15-gal. drums and 5-gal. cans.—KELITE PRODUCTS, INC., BOX 2917, TERMINAL ANNEX, LOS ANGELES 54, CALIF.

THEY Roll-Along ON ROGERS TRAILERS
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Everyday - Everywhere
An impressive number of the biggest contractors TODAY repeatedly put their confidence in ROGERS TRAILERS long proven ability to "deliver the goods" and "stand the gaff" over long periods of heavy usage.
Smaller operators, too, find in the extensive ROGERS LINE, the answer to their particular trailer requirements with proper capacity, road clearance, type of construction and strength with lightness.
We solicit inquiries which make your trailer problems our problems and we generally come up with the correct answer.
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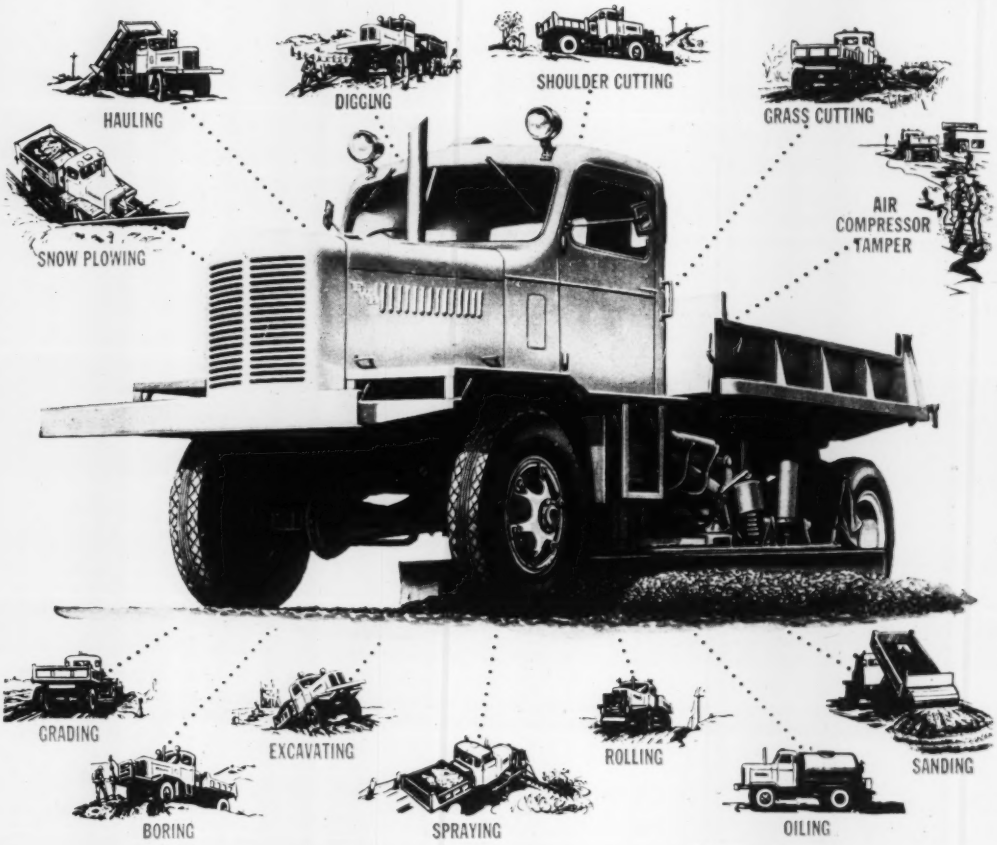
FWD Announces a NEW

MULTI-PURPOSE YEAR 'ROUND MAINTAINER

with your choice of many attachments

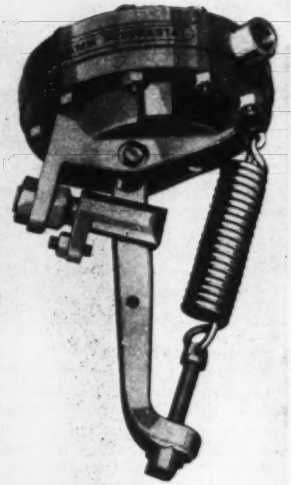


HERE'S how the New FWD Multi-purpose year round Maintainer cuts road maintenance costs in half! • Saves on the whole range of maintenance work • Saves by doing the work of a garage full of specialized units • Saves by spreading maintenance dollars over many different jobs • Saves operator's time through one-way operation • Saves by reclaiming valuable surfacing materials from shoulder and ditches • Saves by doing the job faster • Saves on equipment depreciation • Saves by keeping roads perfectly maintained. To find out how this amazing new FWD *Maintainer* can cut your road construction and maintenance costs, call your FWD Representative — or write direct.

THE FOUR WHEEL DRIVE AUTO CO., Clintonville, Wis.

Canadian Factory: **Kitchener, Ontario.**

America's Foremost Heavy-Duty Truck



Compressor Regulator

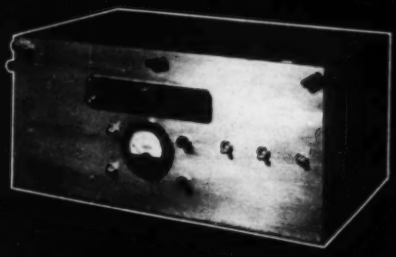
The Pneumastat is designed to regulate the speed of a compressor in accordance with air demand. As the pressure increases, the Pneumastat will adjust itself to balance the throttle in a new position, thereby reducing the speed of the compressor. With this arrangement, the compressor operates continuously from about one-half to the full capacity with loading and unloading, thereby eliminating at part load the cycling between full speed and idle speed, thus making a fuel economy up to 50 percent.—SCHRAMM INC., WEST CHESTER, PA.

Tower Loader

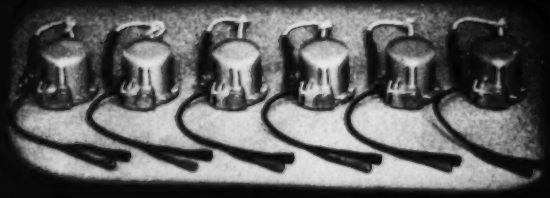
Development of a special tower loader attachment for discharging concrete batches to forms above ground level or into trucks has been announced. Maximum discharge height is 9 ft. 2 in. The bucket handles a full batch directly from the discharge chute of the portable concrete mixer. Discharge at top of tower is completely automatic. Bucket travel and discharge is completed during the time the following batch is being mixed in the mixer drum.—KWIK-MIX CO., PORT WASHINGTON, WIS

Century

PORTABLE REFRACTION SEISMOGRAPH



For use where first arrival information only is needed. Designed specifically for accurate determination of water table or depth of bed rock for dam sites, buildings and other major construction projects. Applicable for sounding of ice depth and other geophysical exploration purposes. Units consist of Century Portable Oscillograph, Attenuator Panel in all-aluminum case and six Seismometers. All units are waterproof and designed for portability.



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Concrete Joint Cleaner

A high-speed concrete grooving machine saves time and gets better results in pavement-joint maintenance. With self-propelling action and one-man operation, it rapidly removes old seal and at the same time cuts a clean, correctly-profiled groove to form a tight bond with the new sealing material. Designed for fast, heavy duty work, the machine is powered by a 13.3 hp. air-cooled gasoline engine, with self-starter, generator and storage battery. Cutting action is provided by a series of 4-in. forged tool steel cutters mounted on a heavy steel cutter head that revolves at 2,400 R.P.M. —G. H. Tennant Co., 2530 N. 2nd St., Minneapolis 11, Minn.

Off-the-Road Tire

A new heavy duty truck tire, the Lugger Traction Tread, is said to reduce tire costs for operators engaged in quarrying and earth moving services of various types. The development of a tire body having extra strength under the tread, plus extra reinforcement at the shoulders and sides to distribute uniformly and absorb impact and shock accounts for the good service delivered by this off-the-road tire.—Cooper Tire & Rubber Co., Findlay, Ohio.

Mechanical Plaster Bond

New device called "Kifs" forms "lathless" mechanical bond between concrete and plaster. Niche-forming keys are produced by use of small elastic button-like nobs the size of a large daisy, nailed about 6 in. apart to the wooden forms for receiving poured concrete. After concrete has hardened, removal of forms pulls "Kifs" out, leaving undercut, cone-shape cavities into which plaster, when applied, squeezes, forming a keyed, permanent mechanical bond between concrete and plaster.—Buffalo Products, Inc., 315 Babcock St., Buffalo, N. Y.

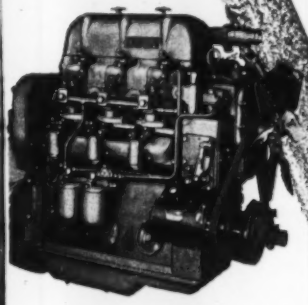
Something New!

(and better)

in

DIESELS

P&H DIESEL ENGINES



Model 387-C. 3 cylinder — 2 cycle.

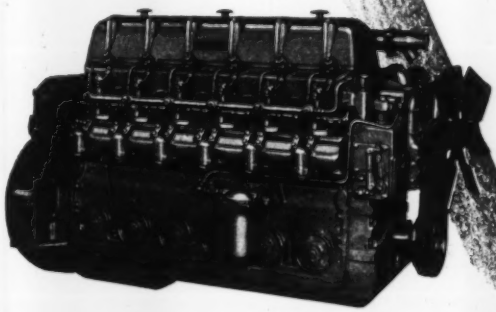
◆ The cylinder head and liner assemblies in P&H Diesels are independent — *removable as a unit* — interchangeable on all models.

This P&H patented feature, exclusive in the field of diesel engines, simplifies maintenance problems and reduces servicing time to a new low.

Improved Liner Construction

Longer cylinder life is provided with liners of alloy steel, *hardened* for maximum resistance to wear. Air inlet parts, machined on a compound angle, impart a strong spiral motion which promotes thorough scavenging and assures complete combustion.

Literature on request. Address Harnischfeger Corporation, Diesel Division, Port Washington, Wis.



Model 687-C. 6 cylinder — 2 cycle.

P&H DIESEL DIVISION HARNISCHFEGER CORPORATION

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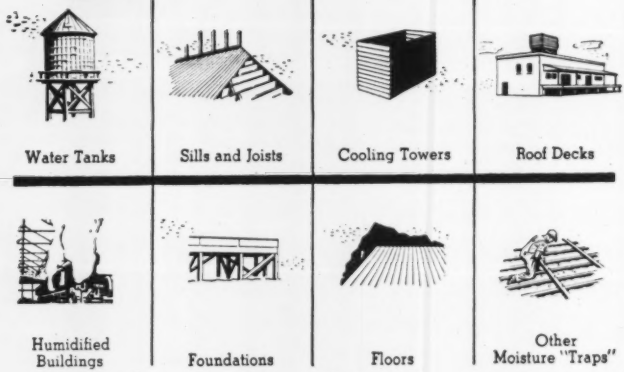
Where Wood Needs Protection from DECAY and TERMITES

WOLMANIZED PRESSURE TREATED LUMBER

. . . lasts 3 to 5 times longer



Here are six common conditions where WOLMANIZED Pressure-Treated Lumber provides protection from decay and termites:

1. Where excessive ground moisture, rain or thaws cause early decay failures.
2. Where wood near the ground is open to termite attacks.
3. Where wood is in contact with damp concrete or masonry.
4. Where steam and vapor from industrial processes promote wood decay.
5. Where walls, floors, ceilings are subject to condensation from refrigeration.
6. Where wood is exposed to moisture in artificially humidified buildings.

Investigations by qualified technologists prove that on installations where decay and termites ordinarily shorten lumber life, WOLMANIZED Pressure-Treated Lumber lasts *Three to Five Times Longer* than untreated wood.

Such lasting protection is assured because penetrating, preservative solutions are forced, by vacuum-pressure treatment, deeply into the wood fibers of WOLMANIZED Lumber. And, WOLMANIZED Lumber is clean, odorless, paintable, non-corrosive, non-leaching and glueable. Only WOLMANIZED Lumber offers *all* these extra advantages.

YOU'LL PROFIT BY GETTING THIS INFORMATIVE BOOKLET

Get all the facts and cost-saving figures on WOLMANIZED Lumber. See why it offers you the best protection available against wood decay and termites. Write for this valuable booklet today.

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Branch Offices: Baltimore, Boston, Jacksonville, Fla., Los Angeles, New York, Philadelphia Portland, Ore., San Francisco, Washington, D. C.

Manufacturers' Publications

Clarifier—An 8-page bulletin describes and illustrates a new and radically different clarifier, the Spiraflo. Adaptable for either water or sewage treatment plants, its features include tangential inlet, vertical upward flow of sewage through a sludge blanket, and a new type of positive grease, scum and oil removal. Included in this booklet are typical case histories, complete design and operation data, plan and elevation views and specifications. — ADVERTISING DEPT., YEOMANS BROTHERS CO., 1445 N. DAYTON ST., CHICAGO 22, ILL.

Wall Form Construction—A 4-page bulletin deals with the Symons system of wall form construction which utilizes panels, but tie rods do not go through the panels, but are anchored at the sides. These ties act as spreaders and do away with 75% of bracing that the old type of forms requires —SYMONS CLAMP & MFG. CO., 4249 DIVERSEY AVENUE, CHICAGO 39, ILL.

Hydraulic Ditch Digging—An interesting booklet discusses a new idea in ditch-digging. Solely by compression, it is claimed that this patented machine will dig a trench 36-in. deep and 14 in. wide without removing any earth. The machine weighs only 3,200 lb. but yet it can develop a pressure of about 300 tons on each side. It is a moving self-propelled wedge which can develop 40 to 60 psi.— TWEETEN DITCHING MACHINE CO., FOREST CITY, IOWA.

Concrete Inserts—Catalog fully describes concrete inserts and pipe hangers—a great variety of them, including some that are adjustable vertically, horizontally, concentrically, and to various rod sizes. Listed are tapped inserts, slotted inserts, perforated extension bars. I-beam clamps, hinged floor and ceiling plates, and many others.—GATEWAY ENGINEERING CO., 3233 W. GRAND AVE., CHICAGO 51, ILL.

Insulating Panel—Large folder tells all about Cemesto, a structural insulating board, made of Celotex cane fiber insulation, laminated on both sides with cement asbestos. A moisture-proof, vapor-resistant bituminous adhesive bonds the cement asbestos facing to the cane fiber core. The result is a tough and durable board

Hystaway Hoe Front

For use with Hystaways mounted *on all* "Caterpillar" D8 and current series D7 track-type tractors

Ditch digging is fast and efficient with the new Hystaway Hoe. A narrow trenching bucket (23-in. cutting width) is available as optional equipment.

A HIGH SPEED, rugged NEW EARTH MOVING TOOL for *ditch and trench digging and basement excavating.* DOES ANY JOB that a CONVENTIONAL ½-cubic yard bucket (cutting width 33 inches) CAN DO.

The Hystaway Hoe Front will dig to a full 15 ft. depth. It has MORE REACH than a conventional back hoe—an EXTREMELY FAST SWING—an actual EXCESS of POWER because of the "Caterpillar" diesel tractor engine.

The Hystaway, mounted on a "Caterpillar" D8 or D7 track-type tractor with bulldozer, now provides four tools—dragline, clamshell, crane and the NEW BACK HOE—and full tractor mobility and maneuverability are retained.

Current delivery. See your "Caterpillar" distributor.

HYSTER COMPANY

2953 N. E. Clackamas . . . Portland 8, Oregon
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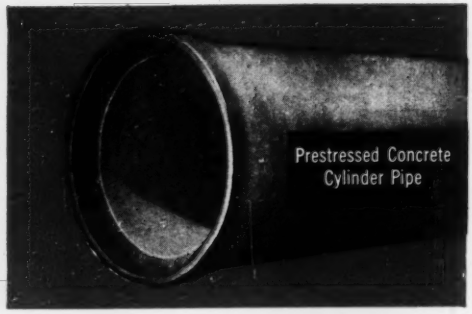
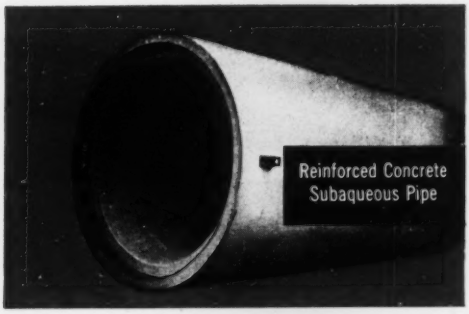
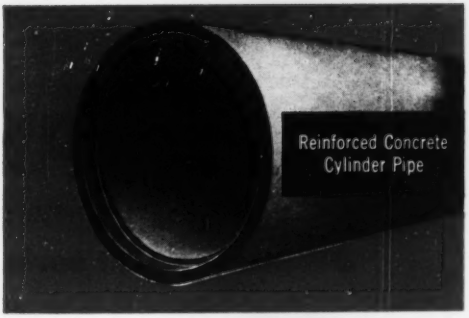




let LOCK JOINT solve your water supply problems



Lock Joint's four designs of reinforced concrete pressure pipe answer any problem in the field of large-diameter water supply conduits.

All of these designs may be equipped with Lock Joint's flexible, self-centering Rubber and Steel Joint, which simplifies installation and reduces the initial cost of laying the line.

Lock Joint Reinforced Concrete Pressure Pipe is made in all standard diameters from 16" up, and will withstand any pressure common to American water works practice.

* * *

Your inquiry at any of the Company's offices will receive a prompt reply.

LOCK JOINT PIPE COMPANY

Est. 1905

P. O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS
Wharton, N. J., Turner, Kansas

BRANCH OFFICES:
Cheyenne, Wyo. • Denver, Colo. • Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. • Wichita, Kan. Kenilworth, N. J. • Hartford, Conn.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

* * *

that combines high thermal insulation with great structural strength.—THE CELOTEX CORP., 120 So. LASALLE ST., CHICAGO 3, ILL.

Nordberg Diesel – A bulletin has been issued on a Nordberg Type 4FS-1 four-cycle, one-cylinder, 4½" x 5¼" diesel engine. This 4FS-1 engine has a rating of 10-15 hp. at operating speeds of 1200-1800 rpm. It was developed to meet the need for a simple, compact, dependable engine capable of continuous heavy duty service. It is offered as a complete, self-contained, ready to operate unit for direct connection or belt drive, as an electric generating set and as a pumping unit.

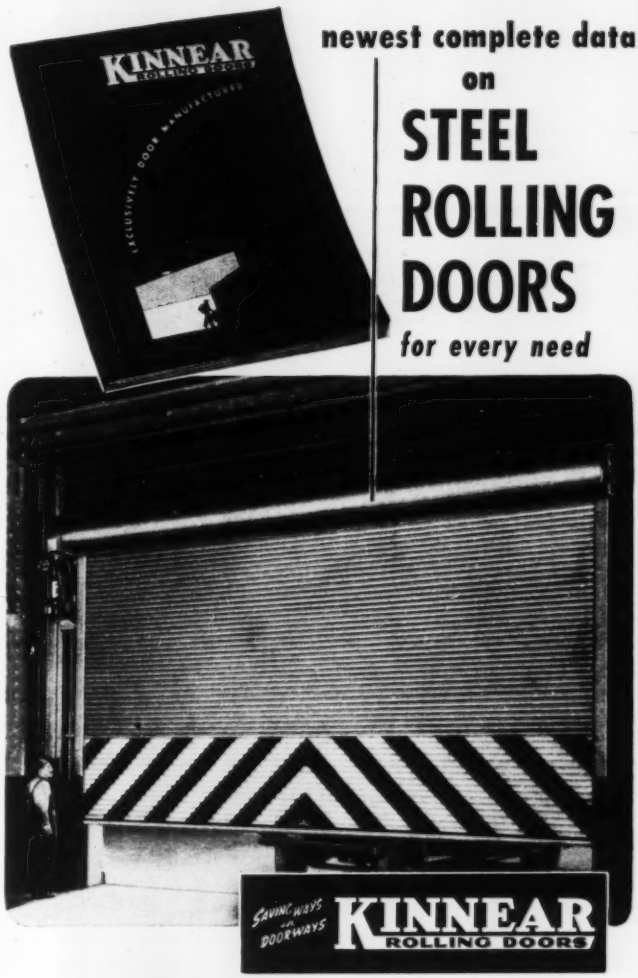
In addition to a general description and pictures of three models of this engine, Bulletin 165 describes lubrication, fuel system, governor, cooling system and starting. Parts of the engine are illustrated and specifications are given. — NORDBERG MFG. CO., MILWAUKEE 7, WIS.

Fabricating Data—An illustrated manual, "How to Veneer and Fabricate Formica." Covers the operation required for building sink cabinet tops, dinette and coffee table tops, vanitory units (bathroom lavatory-vanity combination), and built-in furniture where Formica is utilized. Instructions are included on choice of materials, tools and other equipment, gluing, pressing, edging and finishing according to factory-tested methods. —THE FORMICA CO., SPRING GROVE AVE., CINCINNATI 32, OHIO.

Vibrating Screen—A positive eccentric vibrating screen is described in a 16-page, 2-color book giving specifications and dimensions for 60 sizes of single-, double- and triple-deck units. Chief features of the new design are the hub-mounted bearings which are located outside the screen body, straight shaft design with eccentricity achieved by means of patented hubs, three-point suspension or support. Among the advantages claimed are sharper sizing action, higher capacity, lower first cost, reduced headroom, light sub-structure requirements, easier installation.—LIPPMAN ENGINEERING WORKS, 4603 W. MITCHELL ST., MILWAUKEE 14, WIS.

Electrodes—"How to Choose and Use the Correct Electrode" is explained in a booklet with that title available on request.—THE CHAMPION RIVET CO., HARVARD AVE. & EAST 108TH ST., CLEVELAND 5, OHIO.

Insulated Piping—A booklet, "Engineering Data for Underground Steam Distribution, Section 480-2", deals



newest complete data on

STEEL ROLLING DOORS

for every need

Complete information on smooth-working, space-saving doors for every need is at your fingertips in this new catalog. The easy upward action of Kinnear Rolling Doors brings time-saving efficiency to any doorway. The strong, all-metal, interlocking slat curtain opens completely out of the way, safe from damage . . . provides extra safety against fire, wind and intrusion when closed. Any size; motor or manual control. Full data on sectional-type upward acting doors is also included. If you haven't a Kinnear catalog for quick reference now, send for your free copy of this latest issue.

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THE TIGER BRAND SPECIALIST SAYS—
"It's not use but abuse
USS
AMERICAN
TIGER BRAND
WIRE ROPE
UNITED STATES STEEL

that determines wire rope life"

check your application

"Everything was wrong on this job. When I arrived the superintendent and the operator were having a terrific argument. The 'Super' claimed that the operator was wearing out wire rope twice as fast as anybody else on the job. The operator blamed the machine. I could see that nobody knew the real source of trouble.

"I offered to give them a complete check-up and they both jumped at the chance. It turned out that they were using cast iron sheaves which were too soft. To make it worse, the wire rope was not preformed and tended to twist and squirm as it passed over the sheaves.

"The rope bit into the sheaves and the sheaves got rough and chewed up the rope.

"That's the story. I recommended harder manganese steel sheaves and Excellay Preformed Wire Rope. With the right rope for the job, they ought to get twice the service."

How proper wire rope application saves you money

There is always *one* best type of wire rope for every application and the TIGER BRAND Wire Rope Specialist can help you select the *right* ropes for your particular needs. His job is to make sure that the rope is not overloaded. He checks the sheaves for proper size, wear and alignment. He instructs your operators on proper rope care and does a dozen other things to assure long service life at low unit cost for wire rope.

To help you maintain these operating standards, we have prepared a booklet entitled, "Valuable Facts about the use and care of Wire Rope." Every key man on your operating staff should be supplied with this much needed information.

SEND FOR FREE BOOKLET

American Steel & Wire Company
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Cleveland 13, Ohio

Gentlemen:

Please send me a copy of your booklet, "Valuable Facts about the use and care of Wire Rope."

Name.....

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AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM, SOUTHERN DISTRIBUTORS
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AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

Rock-Crushing POWER AT ROCK-BOTTOM COST

Ada County's Universal No. 880 Master gravel plant with 24" twin dual roll crusher and No. 1024 jaw crusher, powered with a 6-71 GM Diesel engine.

Here's a rock-crushing plant that produces up to 200 three-yard truck loads a day using only 45 gallons of fuel in 8 hours. It's owned by Ada County, Idaho, and it is powered with a 6-cylinder General Motors Series 71 Diesel.

In applications like this, all over the country, these rugged 2-cycle GM Diesels are getting more work done—and getting it done for less cost. With power at every downstroke, they deliver a sturdy, dependable flow of power. They're smooth, easy to start and quick to adjust to varying load demands.

As for upkeep—it is always low because of the clean, simple design and precision manufacture found in GM Diesel engines. They are built to "take it" on tough jobs like this—are given rigid "run-in" tests. Then too, they are backed by Detroit Diesel's well-known owner service policy and the ready availability of factory engineered replacement parts.

All this makes a GM Diesel a natural for any job you may have. It's an engine you'll want to learn about, so write today for the complete story.

DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES...*Up to 200 H.P.* **DETROIT 28, MICHIGAN** MULTIPLE UNITS...*Up to 800 H.P.*

GENERAL MOTORS

GM GENERAL MOTORS DIESEL POWER

DIESEL POWER WHEREVER YOU ROLL

with such subjects as the layout of the route, methods of estimating steam loads, steam flow charts and tables, properties of steel pipe, properties of saturated steam, and other similar related topics. "Typical Engineering Drawings—Section 480-3" reproduces actual drawings used in a wide variety of insulated piping installations. These include industrial, educational, housing, hospital, public utilities, railroad and governmental projects. Both booklets are in 8-½ x 11-inch format for easy handling and filing.—THE RIC-WIL CO., DEPT. A23, UNION COMMERCE BLDG., CLEVELAND, OHIO.

Bituminous Paver—A catalog describes the Model BP-5 Jaeger bituminous paver which is adjustable while in motion to any width from 9 to 12½ ft.; and quickly adjustable for lesser widths down to 5 ft. 8 in. It lays any material to exact thickness and uniform desired density. It also matches and paves flush to adjacent course, curb or gutter.—THE JAEGER MACHINE CO., COLUMBUS 16, OHIO.

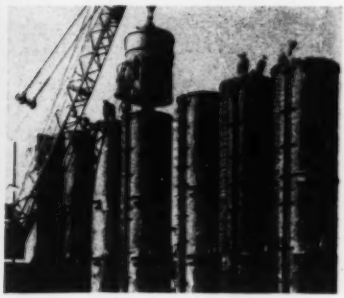
Anti Stream Pollution—To show how many mills, shops and plants are effectively combating stream pollution through the use of standard pH equipment which automatically controls the neutralization of waste, there has just been published a 20-page, fully-illustrated bulletin entitled, "For Effective Neutralization of Industrial Wastes—Micromax Automatic pH Control." This publication describes a unique "controllability analysis" by which engineers are advising management in advance whether waste pH can be kept within prescribed limits . . . or what treating system layout, or modification of existing layout, will be required. This bulletin also explains how the equipment continuously regulates the addition of reagent to raw waste so that pH is held within the limits predicted.—LEEDS & NORTHRUP CO., 4934 STENTON AVE., PHILADELPHIA 44, PA.

Window Planning—A booklet points out that proper house fenestration should give abundant daylight, ample fresh air, good visibility, weather protection and safeguarding against insects and intruders.—DETROIT STEEL PRODUCTS CO., 3159 GRIFFIN ST., DETROIT 11, MICH.

Anchoring Devices—A handbook tells of expansion bolts, screw anchors and masonry drills for anchoring wood and lag screws in solid material; for bolting into masonry, brick, concrete or stone; and for anchoring machine bolts and screws into masonry. —THE RAWLPLUG CO. INC., 271 CHURCH ST., NEW YORK 13, N. Y.

VIBER SAVES TIME AND COST IN CONCRETE CONSTRUCTION

TESTS OF NEW DESIGNS AND DEVELOPMENT IN VIBER EQUIPMENT PROVE INCREASED EFFICIENCY AT LOWER MAINTENANCE COSTS

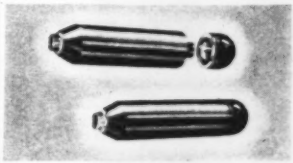


PX-6 EXTERNAL VIBRATOR EXTREMELY EFFECTIVE IN MANUFACTURE OF CONCRETE PRODUCTS AND HANDLING OF DRY MATERIALS

The proper balance of amplitude and speed over a wide range produces marked improvement in the manufacture of concrete pipe and greatly increases the life of the forms. Many placement problems have been solved by this new vibrator.

VIBER RUBBER TIPPED VIBRATORS REDUCE FORM DAMAGE

Damage to expensive form lining materials necessitating frequent form replacement was the reason for



development of Rubber Tipped Vibrators. Severe tests on many large concrete jobs proved costly grinding due to damaged forms was greatly reduced. Another advantage of Viber's Rubber Tipped Vibrators is replaceable tip. Simply unscrew worn part and install new tip.

REVERSIBLE FEATURE PRACTICALLY DOUBLES THE LIFE OF CASINGS

Standard 6, 12 and 21 foot interchangeable Viber casings are reversible. Reversing is easily accomplished

by unscrewing adapter and attaching it to the other end. All cores are reversible. Viber casings are covered with durable, live, tire quality rubber.

For further information or descriptive literature on Viber equipment, please write Dept. 20

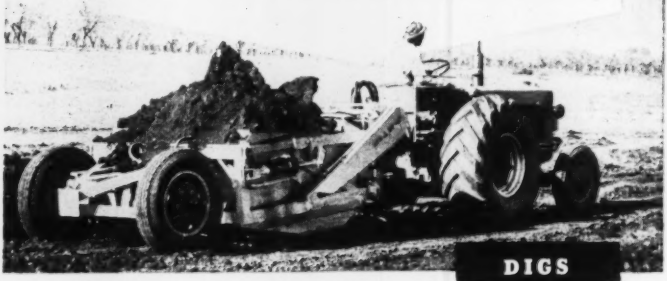
VIBER COMPANY
726 South Flower Street

Concrete Vibrators Since 1931
Burbank, California

With pay loads like these...

BE-GE SPEEDHAULS

pay off in PROFITS!



DIGS

CARRIES

SPREADS

DUMPS

Move more dirt per trip . . . make more trips per hour with fast loading, fast dumping BE-GE "Speedhauls"! Engineered by practical earth moving men and constructed to achieve maximum "on the job" efficiency . . . these fully hydraulic scrapers are designed to operate profitably in all materials.

Self-loading, full carry BE-GE "Speedhauls" have *controllable* cut and spread. Tractor operator with a clear view of the blade instantly regulates the CUT, LIFT, SPREAD, and DUMP operations of the Speedhaul with finger-tip hydraulic controls. Fast, clean dumping or spreading is accomplished by forced "roll-out" ejection . . . uniform depth of cut in *all materials* by positive hydraulic down pressure on the blade.

TOP PHOTO: ST Model Speedhauls for crawler tractors available in 3, 4.5, 6, 8, 10 and 13 yard capacities.

LOWER PHOTO: SS Model Speedhauls for industrial wheel tractors available in capacities of 3, 4.5 and 5 cubic yards.

See your nearest Tractor dealer for full details or write Dept. ENR.

BE-GE MANUFACTURING CO.

GILROY, CALIF. CHATTANOOGA, TENN.

Locomotive Cranes—Two fully-illustrated 20-page booklets have been issued to describe the Model 825 (25-ton capacity) and Model 830 (30-ton capacity) locomotive cranes. These are not just converted steam cranes, but are designed for internal combustion engine power. They can be furnished for the most economical fuel in the locality—diesel, gasoline, propane or butane. Maintenance costs are cut by the use of tough alloy steel shaftings; heat-treated, hardened steel gears; splined shafts; and enclosed travel gears, running in oil. Heavy loads can be set with hairline spotting or fast cycle production work with grapple, bucket or magnet.—AMERICAN HOIST AND DERRICK CO., ST. PAUL 1, MINN.

Hose Couplings and Clamps—An illustrated, condensed catalog describes the complete line of LE-HI hose couplings, clamps, air valves and manifolds. A safety-locking universal coupling with self-locking springs is a featured item in the section dealing with universal type quick detachable air hose couplings.—HOSE ACCESSORIES CO., PHILADELPHIA 32, PA.

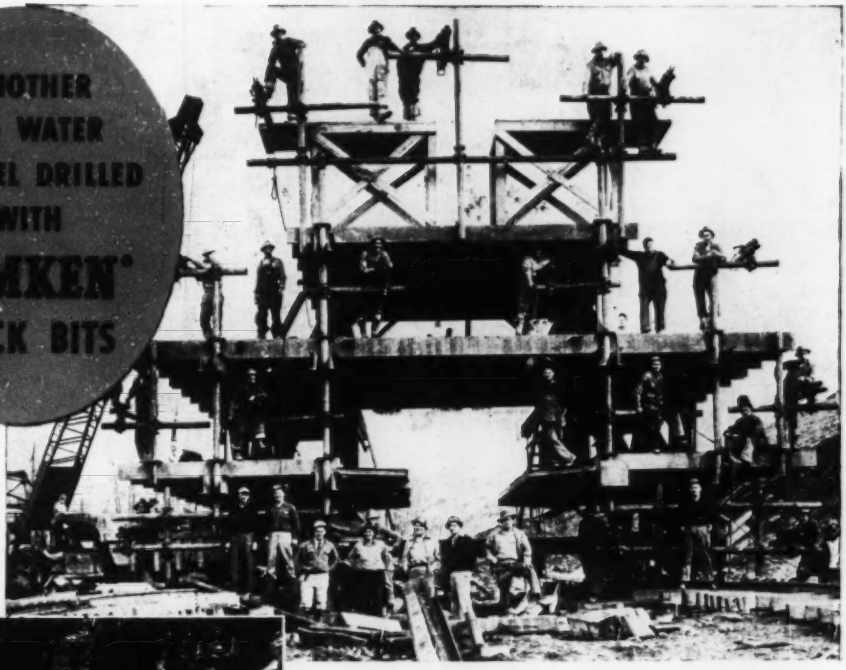
Hydraulic Equipment—An 8-page booklet on valves and gates for hydraulic equipment contains information on butterfly valves, slide and sluice gates, cylinder gates, hollow jet free discharge valves, and other supplementary equipment for the control and handling of hydraulic projects.—WESTINGHOUSE ELECTRIC CORP., BOX 868, PITTSBURGH 30, PA.

White Pocket Lumber—An 8-page pamphlet entitled "A Talk About White Pocket Lumber" in an easy-to-read style offers practical information on the characteristics and uses of lumber containing "white pocket" or, as it is sometimes known, "white speck."—WEST COAST LUMBERMEN'S ASSOCIATION, 1410 S.W. MORRISON ST., PORTLAND 5, ORE.

Annual Review—A handsome, illustrated 40-page booklet is the Allis-Chalmers 1948 annual review. Among many others, it contains sections on power generation and distribution, metals, coal, rock products, petroleum, construction and public works, forest products, and research.—ALLIS-CHALMERS MFG. CO., BOX 512, MILWAUKEE 1, WIS.

Sand and Dredging Pumps—An illustrated booklet describes the construction, operation and uses of sand and dredging pumps designed for extra heavy duty.—GEORGIA IRON WORKS CO., AUGUSTA, GA.

ANOTHER BIG WATER TUNNEL DRILLED WITH TIMKEN® ROCK BITS



Photographs courtesy Gardner-Denver Company, Quincy, Illinois

Walsh-Perini Construction Company, Downsville, New York, recently completed the drilling of one of the largest rock tunnels ever constructed — the largest since the construction of the Hoover dam.

This big water diversion tunnel is 2,200 feet long. It is part of a $13,700,510 project to bring water from the East branch of the Delaware river to New York City. 165,000 cubic yards of rock were excavated in the construction of the tunnel.

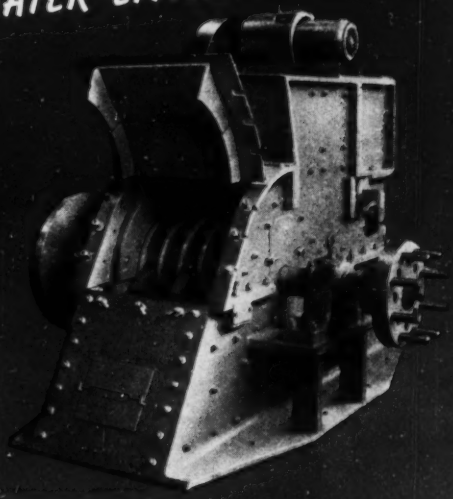
Top heading was drilled with Timken Rock Bits in Gardner-Denver CF99N Automatic Feed Drifters. The drifters, 20 in number, were mounted on the world's largest jumbo. The 17 ft. bench was drilled with Timken Bits in 8 Gardner-Denver D99D Wagon Drills. In finishing the job within the time set, the contractor has expressed complete satisfaction with the performance and economy of Timken Bits.

TIMKEN
ROCK BITS

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO - CABLE ADDRESS "TIMROSCO"

MUD HOG CRUSHER

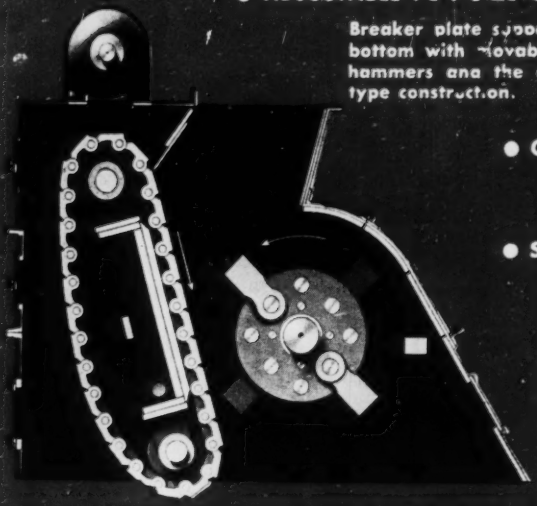
CRUSHES with GREATER EFFICIENCY



WET -- STICKY MATERIAL
(LIKE CLAY, SHALE, ORES, CEMENT ROCK, ETC.)
that plugs or builds up in other types of crushers.

- **CONVEYOR-TYPE BREAKER PLATE** (see drawing) Actually conveys stickiest material into path of heavy steel hammers, which crushes and sweeps breaker plate clean for next revolution . . . gear driven with separate motor . . . rugged construction.

- **ADJUSTABLE FOR SIZE OF PRODUCT** Breaker plate supported at top by fixed drive shaft . . . at bottom with movable shaft for adjusting clearance between hammers and the crushing surface backed by heavy anvil type construction.



- **CAPACITY** — 40 to 350 tons per hour . . . depending upon product desired and crusher size.

- **STREAMLINED** — crusher frames of heavy plate steel . . . back frame flared for large discharge area . . . renewable liners throughout.

Larger sizes of the MUD HOG Crusher (reversible type) have two continuous-moving breaker plates . . . each adjustable for a different size of product.

Bulletin No. 811

THE JEFFREY MANUFACTURING COMPANY

ESTABLISHED 1877

923 North Fourth St., Columbus 16, Ohio

Complete Line of Material Handling, Processing and Mining Equipment

Elections and Activities

Harold L. Scott has been elected president of the Niagara Home Builders Association of Niagara Falls, N. Y. Other officers are: Ted DeLorenzo, vice-president; Victor Tallarico, treasurer; Albert LaDuca and Walter Kozdranski, directors.

Officers of the Niagara Frontier Builders Association were re-elected at Buffalo, N. Y. They are: President, Frederick T. Williams, vice-president, Oscar R. Giesecke; secretary, David Hannah, and treasurer, Charles Peacock. Six directors elected are William R. Albright, J. Harold Genrich, Mr. Williams, Marvin J. Peterson, John R. Bryan and Edward Setel.

Paul La Liberte has been elected president of Engineers' Club of Duluth, Minn. Other officers: R. L. Fitzgerald, first vice-president; H. A. Barber, second vice-president; J. C. Haroldson, secretary; and R. N. Bateman, treasurer.

Orland C. Mayer of Boise has been re-elected president of the Idaho Society of Professional Engineers, with Allen Janssen of Moscow as vice-president, Archie Biladeau of Boise as treasurer and J. L. Morris of Boise as secretary.

C. C. Coykendall, retired administration engineer of the Iowa State Highway Commission, was recently named executive secretary of the newly-organized Iowa Good Roads Association. Coykendall had served with the Iowa Commission for nearly 35 years prior to his retiremenf last summer. He is in charge of the headquarters office of the association in the Onthank Bldg. at Des Moines, Iowa.

R. O. Langguth has been elected president of the Fifth district of the Minnesota Association of Professional Engineers. Other officers: H. R. Weyer, vice-president; Wm. Ostrem, secretary; and Carlo Koski, treasurer.

Quin Flowers, Dothan, has been elected the new president of the Alabama Road Builders Association. He succeeds Clyde Mitchell of Birmingham. Other officers are M. R. Thomason, Montgomery, vice-president; T. L. Hobard, secretary and W. R. J. Dunn, Birmingham, treasurer. New directors are Charles Cargile, Mobile; C. O. Mitchell, Birmingham and Gus

Glued laminated beams in ultra modern service department of Francis-Hopkins Motor Company, Portland, Ore. Beams and ceiling are painted for better lighting. Architect is Richard Sundeleaf, A.I.A., Portland.

When your plans call for moderately wide spans without posts and supports, and appearance requires a generous touch of distinction, you have a logical use for Timber Structures glued laminated beams.

GLUED LAMINATED BEAMS
massive strength
...for heavy loads

These beams, substantially stronger than sawn timbers of equal size, are formed from structural quality Douglas fir, which is kiln dried, precision milled and "welded" together through glued lamination. They will not shrink, check, twist or warp.

Beauty for the Distinctive Touch! Through glued lamination, beams of any size can be produced, and architectural effects of massive beam construction once more are available. All decorative effects are possible...clear finish...stain...paint.

Further information about these new and better materials is contained in folder "Glued Laminated Structural Members". Get a copy from the Timber Structures office nearest you, or write us for it.

TIMBER STRUCTURES, INC.

P.O. Box 3782 • PORTLAND 8, OREGON

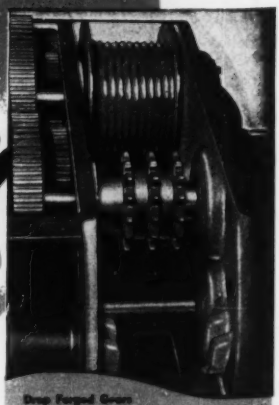
Offices in Boise, Idaho; Eugene, Oregon; Lawrenceville, N.J.; Chicago; Dallas; New York; Seattle; Spokane.

TIMBER STRUCTURES, INC., OF CALIFORNIA — Oakland and Sacramento

Local Representatives Coast to Coast

THE "HEART" of Every UNIT

HUSKY ONE-PIECE CAST GEAR CASE



Drop Forged Gears . . . Involute Splined Shafts . . . All alloy steel and heat treated! Involute splines provide greater strength and eliminate wear . . . No keys to replace . . . No worn-out keyways. Forging "heats" toughness into these parts. Shafts are accurately ground for perfect alignment and gears are precision cut to close limits.

EXCLUSIVE WITH UNIT!

- All gears and shafts are completely enclosed in a constant flow of oil . . . positive protection for all moving parts . . . no chance for dust or dirt to cause abrasive wear.
- Bored for perfect alignment by a machine designed specifically for this accurate operation . . . misalignment is impossible.
- Self-lubricating . . . this case eliminates the need for frequent greasing or adjustment.
- All clutches are smooth operating, disc type, and completely interchangeable. Mounted on the higher speed countershafts instead of directly to drum shafts . . . a modern, approved engineering practice.

Easy to service from all sides . . . Fewer parts . . . Lower maintenance costs! Gasoline or Diesel engines are mounted "straight-in-line" with main machinery in every model . . . Crawler or "rubber-tired" mobile UNITS available.

½ and ¾ Yard Excavators — Cranes . . . up to 15 tons

UNIT CRANE & SHOVEL CORP.

6315 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN U. S. A.

SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHOES • MAGNETS

Dozier, Montgomery. Directors who will continue in office are J. P. Morse, Birmingham, W. A. McWaters and W. R. Goodwin, Montgomery.

The Arkansas Engineers Club has elected L. Ray Parmalee, Helena engineer, president, succeeding E. E. Mashburn. Alf Johnson, chief engineer of the Arkansas Highway Department, is vice-president and Don Hayes, of the department, steward. E. E. Mashburn is chairman of the Board of Directors for 1949.

Achilles Guibet, New Orleans contractor, has been re-elected president of the Mississippi Valley Flood Control Branch, Associated General Contractors of America. Other officers are C. B. Ford, Dyersburg, Tenn., vice-president at large; A. G. Hall, Dyersburg, Tenn., vice-president; Vernon Long, Memphis, secretary-treasurer; and H. N. Rodgers, Memphis, honorary secretary-treasurer. Directors are G. W. James, Ruston, La.; R. H. Jones, Clarksdale, Miss.; C. J. List, Kansas City, Mo.; Warfield Nugent, Rosedale, Miss.; R. J. Reid, Birmingham, Ala.; C. T. Watts, Rochdale, Miss.; Paul Jahncke, New Orleans; C. W. Vollmer, Houston, Texas; Morris DeWitt, Poplar Bluff, Mo.; Arthur L. Walker, New Orleans; R. A. DuBose, Mobile, Ala.; D. B. Hill, Little Rock, Ark., and S. J. Cohen, Blytheville, Ark.

A. N. Goldberg, New Orleans, is president of the Louisiana Highway and Heavy Construction Branch of the Associated General Contractors of America at Baton Rouge. Arthur C. Watson is vice-president and Roy M. Lilly secretary-treasurer.

MAJOR MEETINGS

Engineering Institute of Canada, Quebec City, Quebec, May 11-13.
American Road Builders' Assn., Southeastern States Conference, General Oglethorpe Hotel, Savannah, Ga., May 11-13.
Society for Experimental Stress Analysis, Hotel Statler, Detroit, Mich., May 19-21.
American Water Works Association, Stevens Hotel, Chicago, Ill., May 30-June 3.
President's Highway Safety Conference, Washington, D. C., June 1-3.
Central States Sewage Works Assn., Hotel Sherman, Chicago, Ill., June 17-18.
American Society of Engineering Education, Rensselaer Polytechnic Institute, Troy, N. Y., June 20-24.
Symposium on Research in Water, Sewage and Industrial Wastes, sponsored by Public Health Service, Dept. of Commerce Auditorium, Washington, D. C., June 23-24.
American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 27-July 1.

More than ever.. the Leader in the Field

Give Briggs & Stratton 4-cycle, air-cooled gasoline engines *any* job within their power range.

You'll soon see why Briggs & Stratton engines are recognized as the leaders in the field.

You'll find the Briggs & Stratton engines are tough, dependable, trouble-free — why they outperform and outlast any other engines of equal horsepower — and why they are today's outstanding power value.

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U. S. A.

Maintaining Leadership Since 1917, *more than 30 years without interruption,* it has been the aim at Briggs & Stratton to build the best 4-cycle, single-cylinder, air-cooled gasoline engines that engineering brains and precision manufacturing can provide.

The attainment of that goal is acclaimed by more than 4,000,000 engines which have been built and put into the hands of users.

Constant field and laboratory testing—constant developing and experimenting have added feature after feature, improvements and refinements.

New manufacturing processes, too, and ever-increasing precision in production and assembly are further assurance of the maximum in efficiency and performance.

STRUCTURAL STEEL FABRICATION

to meet any specification

for

INDUSTRIAL, OFFICE AND COMMERCIAL BUILDINGS

SCHOOLS

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TIPPLES

The LEVINSON STEEL COMPANY

71 PRIDE ST. • PITTSBURGH, PA.

LS-3

MEN AND JOBS

Clarence E. Stahl of Omaha, Neb., has been appointed state highway engineer of Montana, succeeding **Scott P. Hart**, 26 years with the highway department, who becomes head of the programming division. Stahl was chief of the Army Corps of Engineers management division, Missouri River division, holding as a civilian the same job he filled during the war when he was an army colonel. He became construction engineer for the Seventh Service Command at Omaha in 1941, and was an assistant to the division engineer and chief of operations and construction. He was awarded the Legion of Merit for his wartime work, during which he supervised a $1,500,-

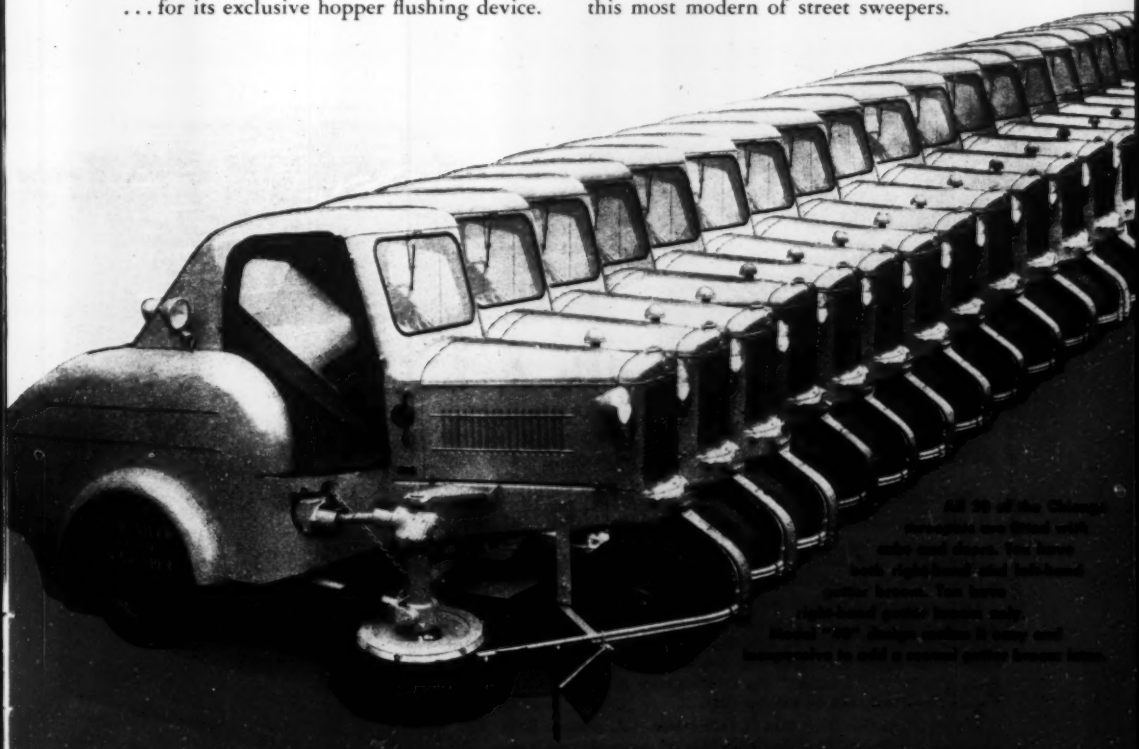
Recently delegates to the N. Y. State Highway Association Convention in Albany toured the W. & L. E. Gurley plant in Troy, where precision surveying instruments are made. They were guided through the century-old plant to observe the intricate steps of manufacture. Here, left to right, C. I. Day, Gurley president, explains the operation of specialized lens grinding equipment to C. W. Hathaway, W. J. O'Brien, R. M. Howard, H. F. McQuade, and C. Sholtes.

Members of the Corps of Engineers' Committee on Tidal Hydraulics meeting recently at the Waterways Experiment Station in Vicksburg, Miss., include, left to right, back row: Martin A. Mason, chief, Engineering and Research Branch, Beach Erosion Board, Washington, D. C.; Berkeley Blackman, chief, Reports and Planning Section, Civil Works Branch, South Atlantic Division, Atlanta, Ga.; James R. Johnston, Engineering Division, North Atlantic Division, New York; and Ralph F. Rhodes, special assistant to the district engineer, Savannah, Ga., district. Front row: Richard O. Eaton, Engineering Division, South Pacific Division, Oakland, Calif.; Oscar Rosenzweig, Engineering Division, Philadelphia district; Clarence F. Wicker, chairman of the committee and chief of the Engineering Division, Philadelphia district; and Joseph B. Tiffany, technical executive assistant to the director, Waterways Experiment Station.

20 for Chicago

The parade is on! City after city chooses the Model "40" Sweeper. Chooses it for its exclusive three-wheeled design with front steer and rear dump . . . for its NO CONVEYOR feature with patented deflector bar . . . for its 36" bump proof oscillating gutter broom . . . for its exclusive hopper flushing device. Sweeping width is 7' with one gutter broom (right-hand or left-hand); 9' with two gutter brooms. A Leaf Broom attachment solves the leaf problem.

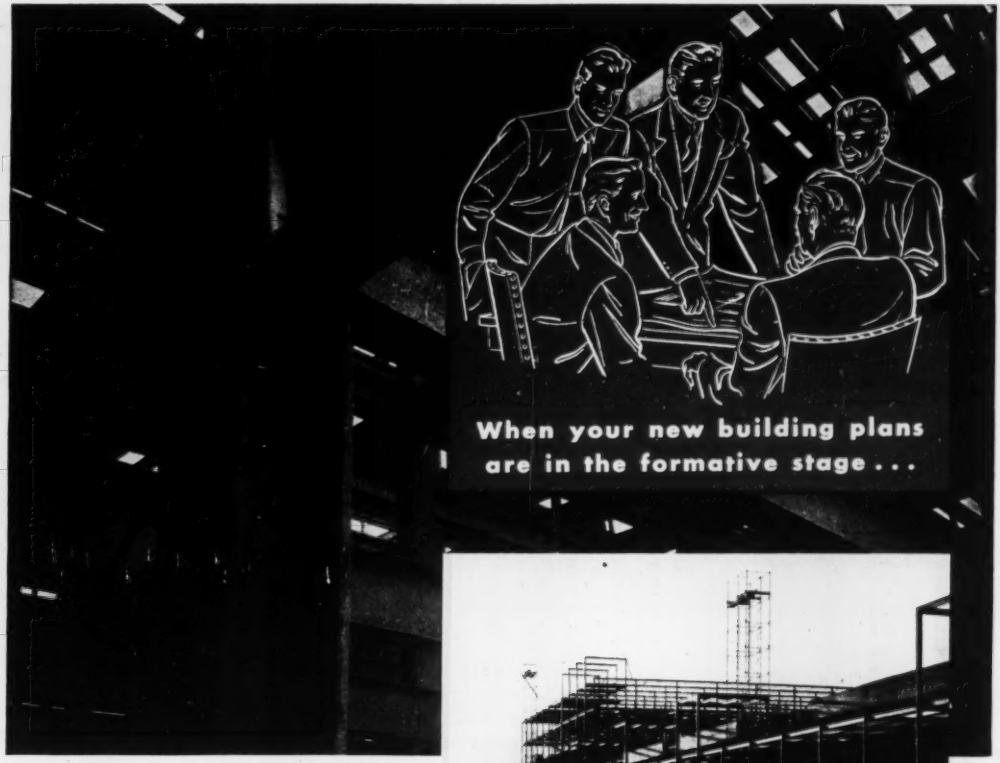
Your nearby Austin-Western distributor will be glad to tell you the whole story of this most modern of street sweepers.



All 20 of the Chicago sweepers are fitted with sides and doors. Ten have both right-hand and left-hand gutter brooms. Ten have right-hand gutter brooms only. Model "40" design makes it easy and inexpensive to add a second gutter broom later.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS

Austin Western



This great plant of the Sunshine Biscuit Company, at Kansas City, Kansas, followed the Allied plan from blueprint to finished erection of 4,242 tons of fabricated structural steel.

Consultation with ALLIED *Pays Big Dividends*

The Allied staff takes over when you send your plans and specifications to us for estimating.

First, bids are submitted for your work. Then, when awarded the job, work starts on structural units, according to your plans and specifications, in one of Allied's plants. Here unified control and modern equipment speed your job through without a bottleneck. Finally, "on location," the erection crew proceeds to button up structural steel on the due date.

It's a well-synchronized plan of fabrication and erection. Built on efficient scheduling, a maximum use of materials and men. Ask Allied about it. It pays dividends in time and money.

3 PLANTS WORKING AS ONE HUGE OPERATION TO GET YOUR STRUCTURAL STEEL FABRICATED AND ERECTED

(SEND ALL INQUIRIES TO ABOVE ADDRESS)

000 construction program. Previously, he had worked on a railroad survey in eastern Montana, served overseas in World War I, was state engineer in Minnesota, state divisional engineer in Kansas, and he was also an official of the state highway department in Missouri.

Wesley Sweat has replaced Norman Bryan as 5th division engineer for the Florida road department at DeLand. Mr. Bryan is expected to join the Tallahassee staff.

The new division of water pollution control of the U. S. Public Health Service recently announced appointment of **Sylvan C. Martin,** senior sanitary engineer, to head the Great Lakes Drainage Basin office at 225 West Jackson Street, Chicago. This is the third of 14 proposed river basin offices being established to coordinate the federal water pollution control activities with state, interstate, and local agencies as provided in the recently-enacted federal Water Pollution Control Act.

Russell Mansfield has been appointed a vice-president of the Perry Construction Co., Inc., in charge of the Chicago office. He was formerly chief building inspector in charge of the department of buildings, Chicago, Ill.

The West Virginia State Road Commission has established a department of soil mechanics, and has appointed **Robert F. Baker,** engineer in

Neal D. Smith has been appointed city manager of Santa Cruz, Calif., from a list of 30 applicants. He resigned as assistant city manager of San Diego, Calif., having held that post for a year. Formerly he was city engineer. He was employed as engineer by Metropolitan Water District from 1928 to 1939.

For those rough, tough power jobs

HERE'S A NEW, COMPACT WICO *heavy duty magneto*

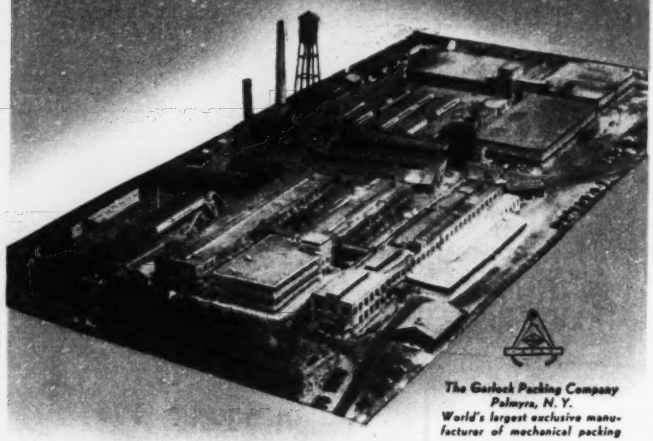
No matter how many hours of continuous service you need . . . no matter how much dust or dampness . . . your engine will get the regular, hot spark it needs from this WICO Model XHD magneto. It's a *new* magneto, designed to do the hard work you need done. It's compact. The molded, insulated coil is stronger so there's less chance of breakdown. This solid plastic case is far tougher than a tape winding. A specially made bronze bushing and ball bearing, lubricated for life, insure trouble-free service. The large — 3/16" — tungsten contacts resist fouling and wear longer. Built-in impulse coupling. On flange-mounted models, a Buna-N oil seal prevents leakage. Available for 4 or 6 cylinder engines, flange or base mounted.

This *new* WICO Model XHD is the finest magneto available for engines operating in continuous service under the most adverse conditions that require ignition units of exceptional stamina and ruggedness.

If you've had ignition trouble, chances are this economical WICO XHD will change that. Ask your equipment dealer, or one of WICO's more than 2,000 authorized service stations. Wico Electric Company, West Springfield, Massachusetts.

SINCE 1897 WICO DEPENDABLE IGNITION

a 9 million dollar business investment...



The Garlock Packing Company
Palmyra, N. Y.
World's largest exclusive manufacturer of mechanical packing

...Automatic Sprinkler protected, of course!

It's not surprising that many leading manufacturers, like The Garlock Packing Company, for example, have found that fire protection by Automatic Sprinkler earns dividends in dollars as well as in safety. The first buildings of this multi-structure facility were sprinklered back in 1923 and the initial cost of installation has long since been amortized. Subsequent new construction has also come under the vigilance of Automatic Sprinkler protection, *an investment in safety that can't be beat.*

Like Garlock, your business too, is in a position to realize the money saving advantages of fire protection by Automatic Sprinkler, and you'll find the following facts worth keeping in mind:

1. Over a half century of background in the design, manufacture, engineering, installation and maintenance of all types of sprinkler equipments, qualifies Automatic Sprinkler's leadership in the science of fire protection.
2. Automatic Sprinkler devices and systems are designed to the individual requirements of business, commercial and industrial alike, and are approved by all leading insurance authorities.
3. *"Talking over"* the safety and investment advantages of Automatic Sprinkler's involves no obligation on your part and surveys and estimates are cheerfully furnished without cost or obligation.

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TYPICAL
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PROTECTED PROPERTIES

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Piers - Wharves
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Schools - Colleges
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Automatic FIRE FOG
provides positive protection
for severe fire hazards

"Automatic" Sprinkler
FOR INVESTMENT PROTECTION
DEVELOPMENT - ENGINEERING - MANUFACTURE - INSTALLATION
OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

charge. A former research engineer with the Kentucky Department of Highways, he also served for two years as an assistant soil mechanics professor at the University of Kentucky, Lexington.

W. G. Lancaster, Jr., of Columbia has been appointed to succeed **R. L. Smoak** as project engineer of the South Carolina State Highway Department in Chester County.

Robert J. Shillinglaw has resigned as public relations officer of the New York State Department of Public Works, and is succeeded by **William J. LaFleur.** Mr. Shillinglaw will become public relations officer of the recently organized New York Good Roads Association, headed by Charles H. Sells, former state superintendent of public works. Formerly an engineer in the public works department, Mr. LaFleur has been associate director of the public relations bureau.

Harvey O. Schermerhorn, 69, retired May 1 as consulting engineer for New York State after 45 years of service with the Public Works Department. A graduate of Rensselaer Polytechnic Institute, he entered state service as a draftsman in 1904. Later he was engaged in highway, bridge, grade crossing and canal construction projects. He was state commissioner of highways at one time several years ago.

Thomas Buckley, director of public works for Philadelphia, Pa., explains the details of his city's new high intensity street lighting system, at a dinner prior to recent ceremonies marking the inauguration of the illumination on Vine Street. (Westinghouse Mfg. Co. photo)

Cummins-Powered

24 Earth Movers

295,000 Yards a month

A fleet of 24 Cummins-Powered Euclid Rear Dumps moves an average of *295,000 yards* of earth *a month* on Dick Construction Company's job at Locust Gap, Pa.

Their schedule calls for a one and one-half mile round trip every 12 minutes . . . 10 to 15-yard loads on an 8 to 10 per cent adverse grade extending all the way to the unloading point . . . 84 hours on the job every week.

Cummins Diesels make any piece of construction equipment a "money maker."* Write for Bulletin 5263 today.

*Records show yearly fuel costs for a Cummins-Powered earth mover to be as much as $1,136.80 less than fuel costs for another make of diesel doing similar work.

The Cummins Diesel in this Euclid Rear Dump is one of 140 Cummins Diesels powering equipment used on all the Dick Construction Company and A. E. Dick Contracting Company jobs.

CUMMINS DIESEL

SINCE 1919, PIONEER OF PROFITABLE POWER THROUGH HIGH SPEED DIESELS

Cummins Diesels Make Money for You

HERE'S WHY . . .

- Fast work cycles
- Big fuel savings
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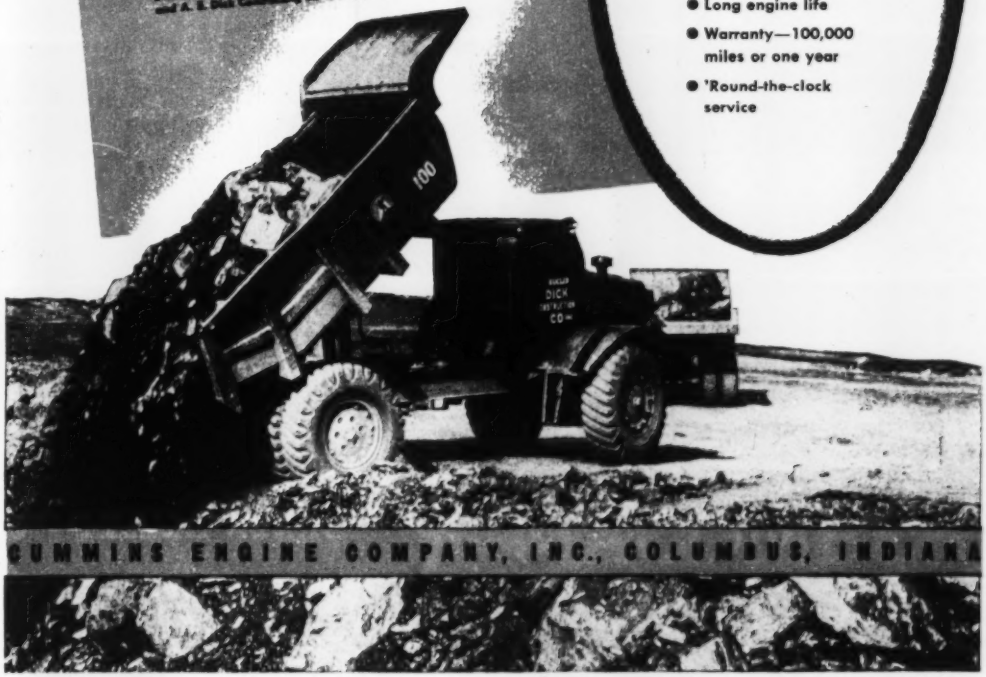
- Long engine life
- Warranty—100,000 miles or one year
- 'Round-the-clock service

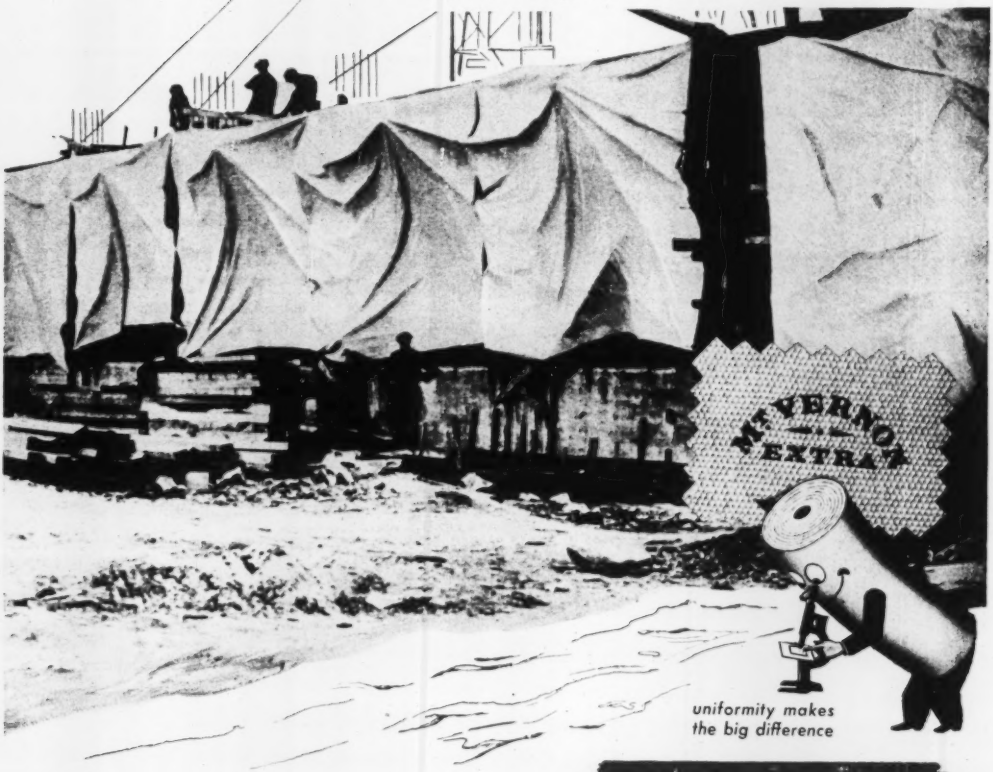


CUMMINS ENGINE COMPANY, INC., COLUMBUS, INDIANA

Tarps that Stay on the Job

Tarps made of Mt. Vernon Extra duck really *stay* on the job. They give the same efficient protection day after day under the most punishing kind of service conditions. And there's months of extra wear built into tarps made of Mt. Vernon Extra. It's all in the way Mt. Vernon is made—from top grades of cotton, under rigid laboratory controls, to a high degree of uniformity that means consistent performance.

For tarps that give you the most in protection, that cut your repair and replacement costs, specify Mt. Vernon Extra.



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R. A. C. Henry, civil engineer, has resigned as chairman of Canada's Civil Aviation Board to become executive vice-president of Marine Industries, Ltd., of Montreal and Sorel. Mr. Henry at one time was deputy minister of the federal Department of Railways and Canals—now the Department of Transport.

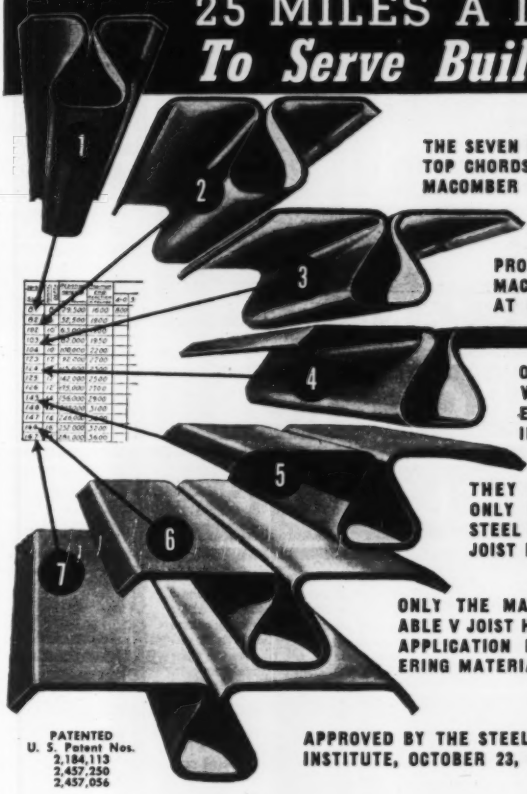
James A. McCullough has been named Delaware state sanitary engineer, succeeding the late R. C. Beckett. Mr. McCullough, who received his bachelor of science degree in civil engineering at the University of Delaware in 1936, until recently was assistant district sanitary engineer for the Ohio State Department of Health. In January, 1946, he went to Brazil as senior sanitary engineer for the Brazilian Field Party with the Health and Sanitation Division of the Institute of Inter-American Affairs.

John S. Moore has been appointed superintendent of the Minidoka project of the Bureau of Reclamation in southeastern Idaho to replace **Stanley S. Marean,** who retired Feb. 28 after 10 years in that position. Moore was superintendent of the Yakima project in eastern Washington from 1931 to 1940 and in charge of operation and maintenance for the entire bureau from 1941 to 1945. He recently has been in the regional office at Boise, Ida. Marean has worked on reclamation projects for 43 years and has been with the bureau for more than 35 years.

N. E. Sanders has been named Cleveland, Ohio, area engineer of the Corps of Engineers. He will supervise the $20,688,000 program to replace seven railroad bridges over the Cuyahoga River. Contract for the first span, the Wheeling & Lake Erie bridge near the head of navigation, is expected to be awarded this spring. Sanders has been in Greece for the last year, supervising the reconstruction of destroyed bridges and roads.

Hugh Emmet Hegarty, of Alexandria, Va., head of the maintenance unit of the Navy Department, has been appointed associate superintendent of public works for Takoma Park, Md., succeeding **Robert Ellis,** resigned. Mr. Hegarty was chosen from 22 applicants. He was a lieutenant and lieutenant-commander with the Navy from 1944 to 1946 in the Pacific and on Okinawa. A graduate of Newark College of Engineering, he will work with Superintendent of Public Works **William F. Fischer,** who will retire in June, when Hegarty will take his place.

We Roll Our Own—
25 MILES A DAY—
To Serve Builders



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PRODUCED IN THE MACOMBER PLANT AT CANTON, OHIO.

ON TWO OF THE WORLD'S LARGEST COLD FORMING MILLS.

THEY PRODUCE THE ONLY NAILABLE ALL STEEL OPEN WEB BAR JOIST IN THE WORLD.

ONLY THE MACOMBER NAILABLE V JOIST HAS UNIVERSAL APPLICATION FOR ANY COVERING MATERIAL.

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YOU CAN SPECIFY Macomber Nailable V Bar Joists from any standard steel joist loading table.

YOU GET EXCLUSIVE STRUCTURAL ADVANTAGES found only in the one steel joist of universal application to any joist job you can design.

YOU GET HOLDING STRENGTH that is far greater than any nail driven into wood nailing strips.

YOU GET THAT MACOMBER JOIST CATALOG and you'll have ALL the facts.

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INCORPORATED
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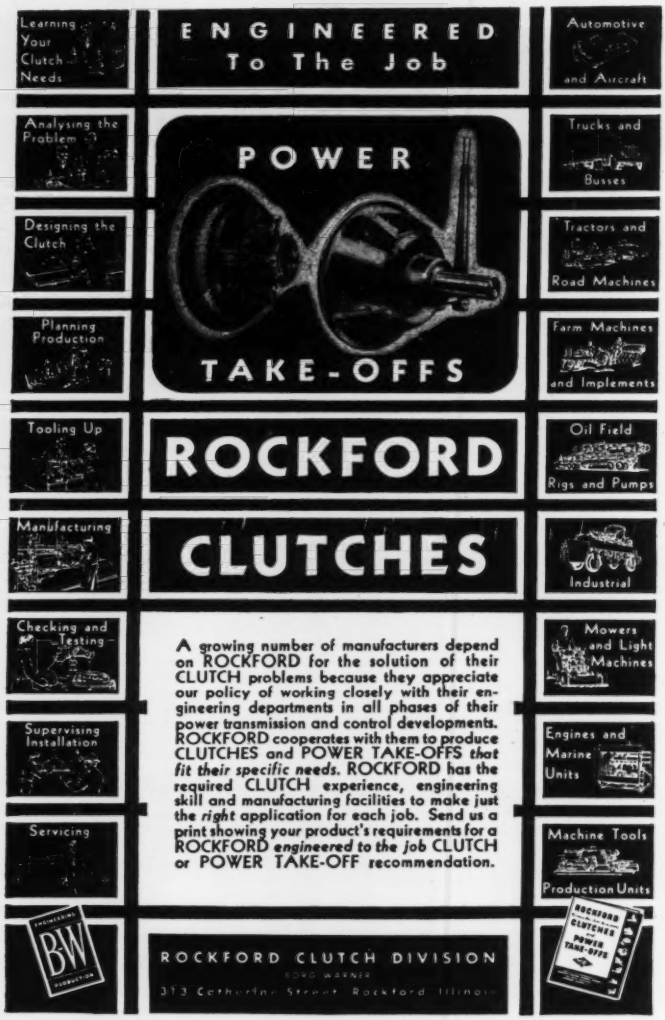
STANDARDIZED STEEL BUILDING PRODUCTS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A growing number of manufacturers depend on ROCKFORD for the solution of their CLUTCH problems because they appreciate our policy of working closely with their engineering departments in all phases of their power transmission and control developments. ROCKFORD cooperates with them to produce CLUTCHES and POWER TAKE-OFFS that fit their specific needs. ROCKFORD has the required CLUTCH experience, engineering skill and manufacturing facilities to make just the right application for each job. Send us a print showing your product's requirements for a ROCKFORD engineered to the job CLUTCH or POWER TAKE-OFF recommendation.
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Wallace S. MacKenzie is the new president-treasurer of Smith, Hinchman & Grylls, Inc., Detroit, Mich., which now has architect-engineering contracts for work in progress exceeding $135,000,000.

W. O. Cudworth of Toronto, in railroad construction in Ontario and Quebec from 1908 to 1949, and special engineer for the eastern region of the Canadian Pacific Railway, has retired after 41 years with the company.

Lars Langloe of Olympia, Wash., has been named assistant supervisor of hydraulics in the Washington State Department of Conservation and Development, in which he had served 14 years as reclamation engineer, department engineer and supervisor of flood control until four years ago. He has been superintendent of the Olympia water department for the last year.

J. A. Reed, 3d district engineer for the Kentucky highway department, has been made assistant director of maintenance for the department at Frankfort. **W. H. Burton** succeeds Reed as chief engineer at Louisville.

Richard J. Canavan, architectural engineer, has been appointed technical secretary of the Producers' Council, Inc., national organization of building products manufacturers. A graduate of Iowa State College, he formerly was district manager in Atlanta, Ga., for the Ingersoll Utility Division of the Borg Warner Corp.

H. W. Doane, Halifax, N. S., civil engineer, will represent Nova Scotia on the Federal District Commission, which is responsible for the planning and maintenance of government parks, grounds and roads in the Ottawa area.

Edward F. Tanghe, acting superintendent of the Milwaukee, Wis., waterworks, has been appointed superintendent, succeeding the late Herbert H. Brown. A graduate of the University of Wisconsin, he has been with the water department for 22 years.

Louis E. Butz, civil engineer and director of the city smoke control division at Akron, Ohio, has been appointed director of smoke control and air pollution for Winston-Salem, N. C., heading a department just established.

R. F. Shaw has been appointed manager of engineering for The Foundation Co. of Canada, Ltd., at Montreal.

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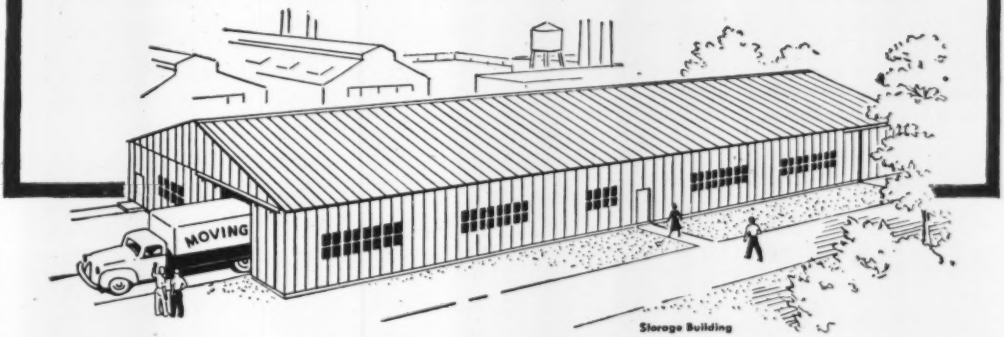
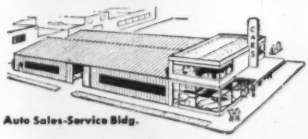
A Low-Cost Steel Building

That Will Solve Your Space Problems At Once!



Storage Building



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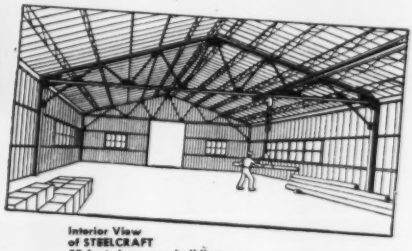
Ready for Delivery to You NOW!

● Steelcraft Standardized Structural Parts and Sections, with unlimited choice of arrangements, are available to expand your present facilities by adding to existing buildings, for separate buildings, or for use in connection with architecturally designed structures.

Complete buildings with ribbed aluminum, corrugated asbestos-cement, or other types of wall and roof panels are available in a wide range of sizes—in single units—in multiples—and in many combinations. Choice of types and locations of doors and windows, provision for crane ways or conveyor systems, skylights, ventilators, insulation and other optional features make Steelcraft Buildings adaptable for any type of occupancy.

Write us today—or have your Architect, Engineer or Contractor consult us for complete information.

A Metal Building or Separate Structural Framework for Your Every Building Need! Let Our Experienced Engineers Make a Survey of Your Building Requirements . . . at No Charge!



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MODERN HIGHWAYS Made *Safer* with..

SEAMAN *STABILIZED* SHOULDERS

Seaman Pulvi-Mixers Handle Any Type of Stabilization

Highways are carrying more traffic, heavier traffic, faster traffic which means only one thing—more safety must be built into the highway. Safety in the form of stabilized shoulders . . . load bearing surfaces that increase the width of highways and speed traffic flow.

Stabilized shoulders also reduce highway maintenance costs substantially—assist in preventing frost boils, frost heaving, volume changes in sub-grade soils, edge breaking, etc. Constant patrolling with motor graders, applying aggregate, replacing aggregate are all maintenance cost factors eliminated by properly stabilized shoulders.

The Seaman Pulvi-Mixer is the one machine that handles *all* types of stabilization . . . turf, soil-cement, bituminous . . . Macadam, calcium chloride . . . one-man operated, it pulverizes and mixes right up to the slab, to any desired width or depth, in lifts if desired, using native soils or aggregate, and leaves a level graded surface ready for compaction, rolling, seeding or mulching.

If you are planning a shoulder stabilizing program, get the complete story on the Seaman Pulvi-Mixer first. It's the one machine that does the entire job at lowest cost per yard.

Seaman, processing soil-cement shoulder on Lake County, Illinois, project.

All types of bituminous surfacing are handled "in place" with a Seaman.

Send for Free Booklet

New, 24-page booklet contains latest authentic information on all types of Shoulder Stabilization processes and methods.

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281 NORTH 25th MILWAUKEE, WISCONSIN

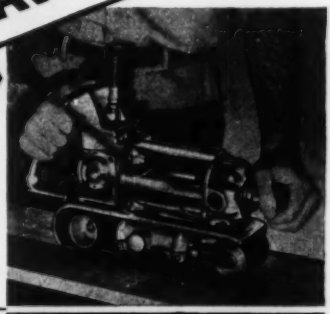
Manufacturers' Activities

Sales—Jack A. Cairns has a sales engineering position for the HYSTER Co. in the Los Angeles area, and the new district manager of industrial truck sales for the western division at Portland, Ore., is Wm. Kilkenny . . . T. R. Johnson is general sales manager for W. R. MEADOWS, INC., Elgin, Ill. . . . Chas. L. Campbell is sales development manager of the eastern division of THE B. F. GOODRICH CO. . . . Stephen M. Jankowski, New Haven, Conn., won the "President's Cup" in the annual national sales contest of the PORTER-CABLE MACHINE CO., Syracuse, N. Y. . . . Jas. A. Vincent is district sales representative for R. G. LE TOURNEAU, INC., for Georgia, Alabama, Florida and Tennessee . . . W. E. Judd is general sales manager of the SOUTH WIND heating equipment division of STEWART-WARNER CORP. at Indianapolis, Ind. . . . Wm. F. Diebold is a director and assistant sales manager of the FOREST LUMBER CO., Pittsburgh, Pa. . . . W. A. Wood has retired as sales representative in Nebraska and South Dakota for the PITTSBURGH EQUITABLE METER division of ROCKWELL MFG. CO. to be succeeded by Jas. E. Glenn . . . W. H. Kuhlman is general supervisor of sales and advertising for the industrial power division of the INTERNATIONAL HARVESTER CO., succeeding Donald Jones, and J. R. Roberts succeeds Mr. Kuhlman as supervisor of sales promotion . . . C. R. Curtis is eastern sales manager of the plywood division of THE MENGEL CO. . . . Wm. A. Lloyd and Isaac Keith are sales engineers for KAYLO insulation, the AMERICAN STRUCTURAL PRODUCTS CO., the former at Washington, D. C., and the latter at St. Louis, Mo. . . . Thos. J. Giblis is sales representative of the CAPITOL EQUIPMENT CO., Troy, N. Y. . . . Jas. F. McCartney is eastern district sales manager at New York for the DUFF-NORTON MFG. CO. of Pittsburgh . . . Philip A. Yochem, J. R. Guildener, Jr., and Wm. B. Johnson have been appointed to sales offices of the WHEELER OSGOOD CO., at San Antonio, Tex., New York, N. Y., and Tacoma, Wash., respectively . . . R. H. Gruner has joined BUILDERS-PROVIDENCE, INC. in the sale of MEEHANITE castings and other products . . . G. M. Drake is sales manager of the PLASTEEL division of LEWIS & McDOWELL, INC., New York . . . W. L. Morris is director of sales of plumbing of the BRIGGS MFG. CO., Detroit.

AMERICAN

Portable Sanders

SAVE LABOR!



AMERICAN SANDERPLANE

Belt Sander handles more work and does it many times faster than a hand plane. Sands the material down to a new clean surface. Two models—with and without dust collector bag. Well-balanced, powerful, efficient.

AMERICAN SPEEDY SPINNER

Disc Sander saves time on many jobs . . . small, portable. Semi-flexible disc allows many uses of the Speedy Spinner on curved as well as flat surfaces. Also, complete attachments for drilling, paint mixing, polishing—no extras to buy. Soon pays for itself.

AMERICAN PORTABLE SANDERS

Send Coupon Today!

THE AMERICAN FLOOR SURFACING MACHINE CO.
506 So. St. Clair St.
Toledo 3, Ohio

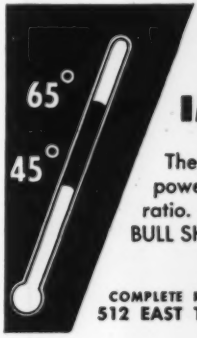
Please send complete descriptive literature and prices on the following—no obligation:

☐ American Belt Sander ☐ American Speedy Spinner

Name.....

Address.....

City.....State.....



IS 45° to 65° CONCRETE SPECIFIED?

IT'S EASY WITH THE

IMMERSION METHOD

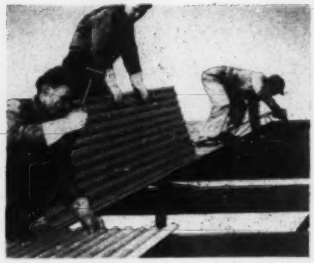
(PATENTS PENDING)

The Immersion Method will lower plant cost, lower power cost, and maintain accurate water-cement ratio. It is now in use on 2,100,000 c. y. pour at BULL SHOALS DAM, MOUNTAIN HOME, ARKANSAS.

ROYAL McSHEA

COMPLETE REFRIGERATING PLANTS ENGINEERED, SOLD, AND ERECTED
512 EAST TWENTY-FIRST STREET . . . WICHITA 2, KANSAS

Roofers stay on top... Costs go way down!



Corrugated Iron or Aluminum Applied *Faster and Better* with

Better jobs, completed faster, with savings of 25% or more in application costs! Little wonder that roofing contractors everywhere are adopting the Nelson "Top-Side" method of securing corrugated iron, aluminum and protected metal.

In this remarkably simple method, Nelson "Rivweld" rivet studs are end-welded to the purlins in a split-second with the Nelson gun. The corrugated metal is then impaled on the rivet extensions which are riveted over to form a weather-tight job.

Because all work is done from the top-side, no inside scaffolding or rigging is required, no workmen are needed under the roof.

Big cost-savings are also being attained with Nelson Stud Welding in applying corrugated asbestos roofing and siding, in installing sprinkler and piping systems, conduit and wireways, insulations of all types, wire mesh reinforcement for gunite.

RENT IT! TRY IT!—Stud welding equipment can now be rented, *for only $45 a month.* Try it on your next job . . . watch it pay off! For details, mail the coupon—with your letterhead—today.

Nationwide Field Engineering Service

NELSON STUD WELDING
Division of Morton Gregory Corporation
2752 Toledo Ave. Lorain, Ohio

NELWELD

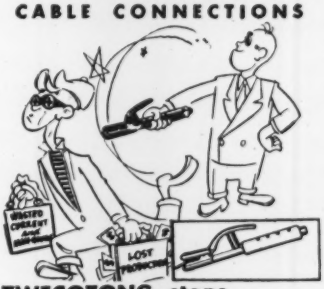
Send complete information about Rental Plan. We're interested in applying the following:

☐ Corrugated Metal ☐ Corrugated Asbestos
☐ Insulations ☐ Electrical ☐ Gunite

Distributors—New distributors for ALHYDRO FLOC PRODUCERS are H. D. FOWLER CO., INC., Seattle, Wash.; and the GENERAL FILTER CO., Ames, Iowa . . . PHILIP FISHMAN CO., 7 Water St., Boston, Mass., is New England representative for VACUUM CONCRETE, INC. . . . MIKE AND JOE EQUIPMENT CO., 139 Central Park, Rochester, N. Y., is a distributor for all products of the WAYNE division of GAR WOOD INDUSTRIES, and also PEERLESS MFG. CORP., 4300 Bluffton Road, Ft. Wayne, Ind. . . . OHIO VALLEY SUPPLY CO., Cincinnati, Ohio, is distributor for the full line of the PHILIP CAREY MFG. CO.'s asbestos and asphalt roofing and siding and rock wool insulation products . . . ATLANTIC GEAR WORKS, INC., 200 Lafayette St., New York 12, N. Y., is exclusive distributor of the OHIO STOCK GEARS of the OHIO GEAR CO. of Cleveland . . . MINE SERVICE CO. of Lothair, Ky., is an exclusive HEWITT RUBBER division distributor in Perry, Letcher, Knott and Leslie counties, Ky. . . . New distributors for FEDDERS room air conditioners are: A. E. BORDEN CO. INC., 142 High St., Boston 10, Mass.; JOHNSTON REFRIGERATION SALES CO., 1420 Holden St., Detroit 8, Mich.; GENERAL ELECTRIC CO., 701 E. Fifth St., Oklahoma City, Okla.; THE FRANK CORP., 322 W. Broughton St., Savannah, Ga., MOTT BROTHERS CO., 907 Main Street, Rockford, Ill., ARA DISTRIBUTING CO., 2300 Olive St., St. Louis 3, Mo.; BROWNLOW'S, INC., 122 Burke St., Winston-Salem, N. C.; NICHOLSON, INC., 806 Ramseur St., Durham, N. C.

Personalities—R. E. Reed has become assistant manager of CENTRAL MACHINERY CO., Great Falls, Mont. . . . E. T. Stannard, president of the KENNECOTT COPPER CORP., will retire this year to be succeeded by Arthur D. Storke, president of CLIMAX MOLYBDENUM CO. . . . Earl W. Bennett is chairman of the board of THE DOW CHEMICAL CO. and L. I. Doan, president. Mark E. Putnam is general manager . . . Gordon W. Cameron, Louis A. Mertz and H. H. Sturdy have been chosen directors of DRAVO CORP., Pittsburgh . . . INTERNATIONAL HARVESTER INDUSTRIAL POWER DIVISION, has announced the appointment of Peter A. Becker as general superintendent, Melrose Park Works, replacing Brooks McCormick, transferred to Kansas City, Mo., as assistant district manager of the general line and industrial district office. . . . H. G. Haake is now manager in charge of CECO STEEL PRODUCTS CORP. operations in the Pacific coast states, W. F. Norton is appointed assistant district manager of the Los Angeles office. F. E. Jennings, district manager, and P. E. Johnson, assistant continue in

STOP WELDING LOSSES *with* TWECO CABLE CONNECTIONS



TWECOTONG stops Arc-Time Robbery

Write for Twecalog No. 7 giving data and prices on the complete TWECO line of electrode holders, ground clamps and cable connections for electric welding.

TWECO PRODUCTS

See Your Welding Supply Distributor

Tweco PRODUCTS COMPANY
MANUFACTURERS OF ELECTRODE HOLDERS • GROUND CLAMPS • CABLE CONNECTIONS FOR ELECTRIC WELDING
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DU PONT ANNOUNCES

A New and Improved Wood Preservative

COPPERIZED CZC

(Chromated Zinc Chloride)

Gives even longer-lasting all-round protection

Now—timber and lumber can have even greater service life than has been obtainable with standard CZC (Chromated Zinc Chloride) treatment. New Du Pont *Copperized* CZC—backed by ten years of laboratory research and field testing—gives promise of being the best all-round salt-type wood preservative ever developed.

In addition to showing far greater preservative effect than standard CZC (Chromated Zinc Chloride), this outstanding new *Copperized* product offers all these same advantages:

- Decay resistance
- Termite repellence
- Fire retardance
- Cleanliness
- No odor
- Safe to handle
- Easy to paint

THESE 6 SIGNIFICANT TESTS SHOW ITS EFFECTIVENESS

1. **Leach block test**
2. **Hardware corrosion test**
3. **Accelerated service test**
4. **Pilot plant treatments**
5. **Strength tests**
6. **Glow tests**

Clip coupon for more facts *on new Copperized CZC. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Dept., Wilmington 98, Delaware.*

DU PONT
BETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

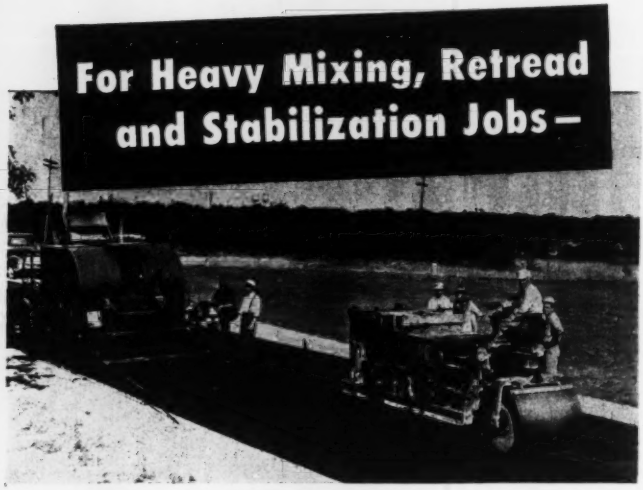
COPPERIZED CZC
(Chromated Zinc Chloride)

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Department—ER-1
Wilmington 98, Delaware
Please send me more facts on new Copperized CZC.

Name_____ Title_____

Firm_____

Street_____ State_____



The New Heavy-Duty Moto-Paver

Although developed primarily to meet the rugged conditions of hilly and mountainous terrain, the heavy duty Moto-Paver is proving equally efficient under widely differing conditions in other sections of the country.

Wherever you have a heavy bituminous mixing, retread or stabilization job, it will pay you to investigate this new and more powerful Moto-Paver. It does the *complete mixing* and *laying job—in one continuous operation.* See your local distributor or write direct for specifications and complete information.

The Moto-Paver is a very flexible as well as a mobile unit. The illustration shows it being used as a stationary mixing plant.

Hetherington & Berner Inc.

730 KENTUCKY AVENUE, INDIANAPOLIS 7, INDIANA

GET **TWICE** THE LIFE AND SAVE WITH

"GUNITE"

Investigate its possibilities. Pneumatically Applied to Any Surface Any Thickness. Bunker Stacks, Tunnels, Reservoirs, Sewers, Walls, Tanks.

Gunite specialists since 1915.
Engineering Data—Estimates

SHOTCRETE CONSTRUCTION CO.
102 Locust St. Garden City, N. Y.
Garden City 7-5451

Hayward Buckets

Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.

THE HAYWARD CO., 40-50 Church St., N. Y.

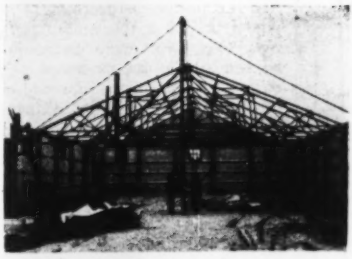
charge of the San Francisco office. . . . Jas. Pinnell is now a director of RAYMOND CONCRETE PILE CO., New York . . . Frank R. S. Kaplan has been elected acting president of COPPERWELD STEEL CO., to succeed the late S. Eugene Bramer. . . . John H. Vohr, assistant general superintendent of the South Chicago plant of the CARNEGIE-ILLINOIS STEEL CORP., is to be general superintendent of the plant at Gary, Ind., succeeding Stephen M. Jenks, who became Chicago district manager of operations. Edwin H. Gott, assistant general superintendent of the Gary plant, will succeed Mr. Vohr, at South Chicago . . . Leo H. Corning succeeds the late Arthur J. Boase as manager of the PORTLAND CEMENT ASSN.'s structural and railways bureau . . . Frank A. Weiss is assistant to the general manager of the HYATT BEARINGS division, GENERAL MOTORS CORP., Harrison, N. J. . . . C. S. Bygate is assistant vice-president of the ROCKWELL MFG. CO.'s meter and valve divisions . . . Following are personnel changes in the NATIONAL SAND AND GRAVEL AND NATIONAL READY MIXED CONCRETE ASSNS.—Fred F. Bartel has resigned to become engineer for the TEWS LIME AND CEMENT CO., Milwaukee, and is succeeded by D. L. Bloem. E. J. Zeigler replaces Mr. Bloem as associate research engineer in charge of laboratory activities at the University of Maryland.

Deceased—Willard H. Dow, 52, president of THE DOW CHEMICAL CO., died in a plane accident at London, Ont. March 31 . . . Jesse A. Davis, 79, retired executive of BETHLEHEM STEEL CO. died in Baltimore, Md., April 2 . . . Chas. R. Cook, chairman of the COOK PAINT AND VARNISH CO., Kansas City, Mo., died at Miami Beach, Fla., April 2 . . . Geo. Hubbard Clapp, 90, one of the founders of the ALUMINUM CO. OF AMERICA, died at Sewickley, Pa., March 30 . . . Edwin J. Lame, 77, vice-chairman of R. D. Wood Co., Philadelphia, died at Wynnewood, Pa. March 26 . . . Frank H. Stohr, 47, general manager of the ALLIS-CHALMERS MFG. CO.'s Norwood, Ohio, works, died March 29 . . . Newman W. Adsit, 66, former treasurer of the N. J. ZINC CO., died in New York, April 16.

Miscellany—INGALLS IRON WORKS CO., Birmingham, Ala., has opened offices in Chicago with Frank Atchison, Jr., in charge . . . MONTGOMERY ELEVATOR CO., Moline, Ill., has moved its sales and service offices from Glendale to Hollywood, Calif. . . . Recently announced in Washington, D. C., was the opening of JAMES H. CARR, INC. Principal is James H. Carr, Jr.,

COMPARE!

Up she goes—easy does it!



After only 4 hours' work!

Large or Small
We Build 'em all!

TYPICAL APPLICATIONS:

General Manufacturing	Freight Depots
Industrial Buildings	Truck Terminals
Commercial Buildings	Field Offices
Storage Buildings	Foundries
Oil Refineries	Fabricating Plants
Machine Shops	Bottling Plants
Processing Plants	Super Markets
Canning Factories	Shopping Centers
Railroad Car Shops	Administration Buildings

See Why STEFCO's the Buy
in Prefabricated Standardized Steel Buildings
for Industrial, Commercial and General Service Requirements

- **UP FASTER WITH LESS LABOR!** Sections factory assembled to speed erection, cut costs.
- **DOORS, WINDOWS ALREADY IN!** Just set up sections and bolt together.
- **FLEXIBILITY TO FIT THE JOB!** Trusses come in 2-foot multiples up to 80 feet. Standard units may be combined to fit practically any building requirements. Unique design permits ready expansion or adaptation as needs require.
- **PERMANENT—YET PORTABLE!** STEFCO Buildings are built to last—yet are completely demountable with a minimum of loss in material. Fire-safe. Weathertight.
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Get full details now

Whatever your needs, chances are you'll find the answer in a STEFCO Prefabricated Standardized Steel Building. Tell us your width, length, eave height, sash and door requirements, and intended building use. We'll be glad to submit a proposal without any obligation on your part.

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STEFCO STEEL COMPANY

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332 S. Michigan Ave.
Phone HArrison 7-9553

ST. LOUIS, MISSOURI
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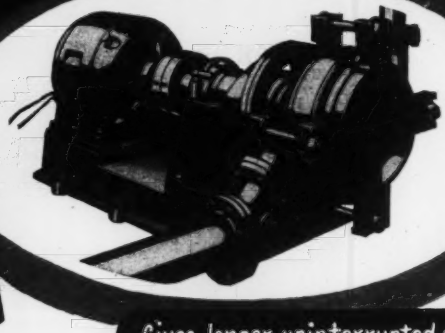
Phone Main 1387

NEW YORK, NEW YORK
50 Church St.,
Phone COrtland 7-6386

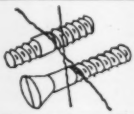
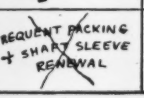
Helps avoid your biggest pump problems

Morris Type "R" Slurry Pump



Gives longer uninterrupted service

Ordinarily harsh abrasives wear out your pump. The corrosive action of acids eats away its utility. Time-consuming maintenance and repairs cut down your production. Now see why the Morris Type "R" helps avoid these problems.

1		**Simple design**—The Morris Type "R" has no internal studs and bolts. Nor does it have troublesome internal joints and fits. The Suction Disc Liner is merely *clamped into position between disc and shell. Fewer wearing parts means less maintenance and longer uninterrupted service.*
2		**Easily dismantled**—The impeller and shaft sleeve of the Morris Type "R" Slurry Pump can be renewed *without disturbing* the suction and discharge piping or the bearings. This means considerably less lay-up time.
3		**More abrasive resistant**—With the clamping effect of the bolts on the discs, the shell is not subject to high stress. Consequently, the shell can be made of a large variety of materials, including those of high abrasive resistance. Yet these materials need not necessarily be of high tensile strength.
4		**The hydraulic passages of the suction disc are extremely large and velocities are low. As a result, wear is minimized and renewal infrequent.**
5		**Stuffing box troubles are practically eliminated because the suction gland is under low suction pressure only.**

IN CHEMICAL ENGINEERING—Morris Type "R" Slurry Pump handles mixtures containing ore concentrates . . . tailings slag and residue from filters and classifiers . . . all types of caustic or acid mixtures containing abrasives or solids.

MORRIS Type "R" SLURRY PUMP

More easily maintained . . . more easily dismantled . . . more hours of continuous service. Proved by 84 years' Morris experience in pump building.

MORRIS CENTRIFUGAL PUMPS

MORRIS MACHINE WORKS

BALDWINSVILLE, N. Y.

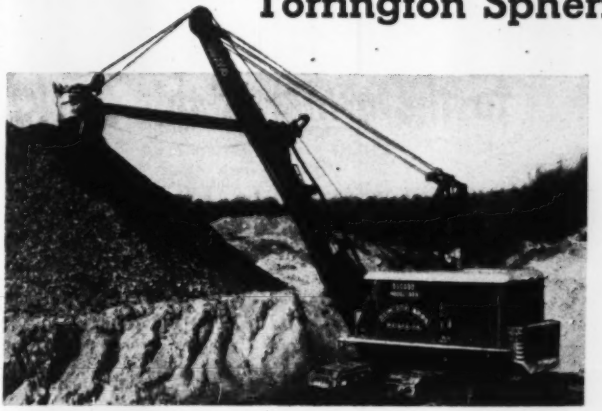
Offices in Principal Cities

formerly in charge of engineering and sales for the TIMBER ENGINEERING CO. . . . MONSANTO CHEMICAL CO., has dedicated its new $26,000,000 plant to 145 employes who died in the Texas City disaster April, 1947 . . . MORTON GREGORY CORP. has sold the American manufacturing and sales rights of the CO-Z-AIR portable electric radiator to the CONCO ENGINEERING WORKS, Mendota, Ill. . . . Purchase of a government-owned aluminum extrusion plant at Grand Rapids, Mich., is announced by the REYNOLDS METALS CO., Louisville, Ky. . . . OHIO STAINLESS & COMMERCIAL STEEL CO., Cleveland, Ohio, has established a Detroit, Mich., branch to operate as the Osco STEEL division at 6970 W. Jefferson Ave. It will carry a full line of cold-finished and hot-rolled carbon bars, cold-finished and hot-rolled carbon sheets, Osco KIL-CAST iron and BRISTOL brass . JENKINS BROTHERS, manufacturers of bronze, iron and steel valves, has a long term lease on the entire 30th floor of the 36-story office building under construction at 100 Park Ave., New York City . . May 15 is the completion date for the new Chicago warehouse for U. S. RUBBER Co. at S. Pulaski Road and 42d St. . . . Price reductions have been announced as follows: Reductions of from 5 to 15 percent on locksets by KWIKSET LOCKS, INC., Anaheim, Calif.; CARNEGIE-ILLINOIS STEEL CORP. and NATIONAL TUBE CO., subsidiaries of U. S. STEEL, announce that because of a decrease of 1c a pound or $20 a ton in the price of zinc, they have made corresponding adjustments in the prices of galvanized sheets, galvanized pipe and other products coated with zinc. CARNEGIE-ILLINOIS has revised coating extras for all its galvanized sheet products to an average reduction in price of approximately $1.25 per ton. NATIONAL TUBE has increased base discounts on galvanized pipe by 1 point, to effect a decrease on galvanized pipe of $2 a ton.

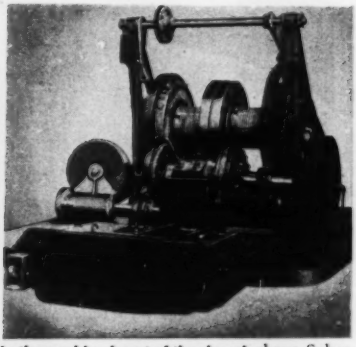
ALSO RECORDED

Installed Equipment—A switch on a common dilemma of the amateur tinkerer is being put to good use these days in the construction of the Nuclear Research Center now being built at Saxonburg, Pa., by the Carnegie Institute of Technology. Remembering the fellow who built a boat in his cellar and had to tear out the wall to get the boat out, Tech scientists are going to reverse the usual procedure in constructing part of their multi-million volt atom smasher. They're going to put up the walls *after* the ponderous steel components of the cyclotron are safely in place.

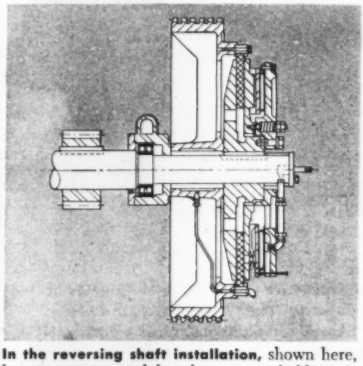
Osgood Power Shovels Crowd, Hoist and Swing Smoothly on Torrington Spherical Roller Bearings



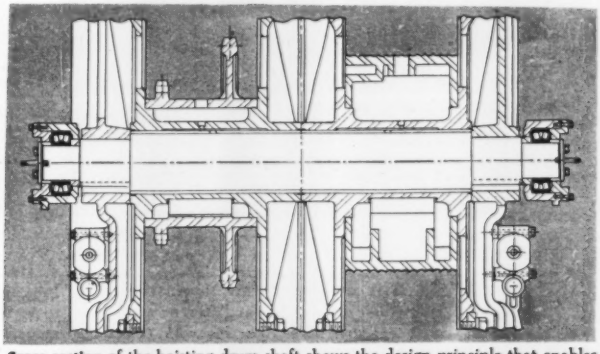
Osgood Power Shovels operate with power for crowding, hoisting and swinging transmitted smoothly on Torrington Spherical Roller Bearings. These self-aligning bearings provide the high capacity required for heavy excavating work and assure long service life. They run free and true even when shock loads cause shaft deflection or frame distortion.



In the working heart of the shovel, above, Spherical Roller Bearings are used on the reversing shaft and the hoisting drum shaft. Design advantages include accurate alignment on installation and axial stability of shafts.



In the reversing shaft installation, shown here, hoisting pinion and bevel gears are held accurately in line, and operate with minimum wear. Spherical Roller Bearings carry the loads with an ample safety factor.



Cross-section of the hoisting drum shaft shows the design principle that enables Spherical Roller Bearings to compensate for deflection. The outer race bore is a section of a sphere, with its center at the axis of the bearing. Barrel-shaped rollers align automatically within this race. Smooth, efficient shovel action results under exacting service conditions.

The reliable performance of Torrington Spherical Roller Bearings in heavy-duty equipment increases machine productivity and reduces maintenance. Our engineers will be glad to help you adapt them to your design requirements. Write us today. THE TORRINGTON COMPANY, South Bend 21, Ind., or Torrington, Conn. District offices and distributors in principal cities.

TORRINGTON SPHERICAL ROLLER BEARINGS

Spherical Roller • Tapered Roller • Straight Roller Needle • Ball • Needle Rollers

You should talk to the owner of this truck!

International KB-7 with dump body

THE OWNER of this International KB-7 uses a dozen International Trucks in his engineering work. (Four are dump trucks, 2 flat beds, 1 oil spreader and 5 Concrete Ready-mix.) He knows what they can do, and how well they do it.

He speaks from experience when he says:

> "The new KB-7 dump truck is a pleasure to drive, and has been getting 9½ miles to the gallon of gas under conditions which should use a good deal more—that is, a lot of starting and stopping and short hauls."

And we aren't exactly speaking as amateurs in the business when we tell you this:

International Trucks are the products of 42 years of real truck engineering. They are available in 22 basic models, 1000 truck combinations, gross weight ratings from 4,400 to 90,000 pounds—to give you the truck that's specialized right for your job. And, they're backed by the nation's largest exclusive truck service organization.

Talk to any International Truck owner. Talk to any International Truck driver. Then you'll know why it will pay you to see your International Truck Dealer for the very next truck you buy. Call him soon.

International Harvester Builds McCormick Farm Equipment . . . Farmall Tractors . . . Industrial Power Motor Trucks . . . Refrigerators and Freezers

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OBITUARY

George H. Gould, 62, for 40 years an engineer on the municipal staff of Providence, R. I., until his retirement last December, died April 24.

William G. Starkweather, president of the Starkweather Engineering Co., Inc., Newton, Mass., died there April 23. He was educated at Cornell, practiced in San Francisco, Milwaukee, and Boston, and for many years was a representative of pump and power machinery makers in New England.

Basil C. Scudamore, 64, died April 18, at Kingston, Ont. He had been a member of the Royal Canadian Engineers for 40 years, retiring four years ago. For many years he was at Halifax, N. S.

Raymond R. Mosier, 35, civil engineer with the Federal Works Agency, was injured in an automobile accident and died April 25 in Washington, D. C., where he worked.

Leland Campbell, 54, chief engineer for Linebarger Construction Co., died in Little Rock, Ark., April 17.

Frank R. Cox, 63, road design engineer with the Nebraska highway department, died at Lincoln, April 19.

Ralph E. Barrowman, 60, twice city engineer of St. Cloud, Minn., died recently in Minneapolis.

C. W. Hiner, district engineer of the Omaha office of the Portland Cement Association for the last eight years, and well known in engineering circles through the state of Nebraska, died in Lincoln on April 11.

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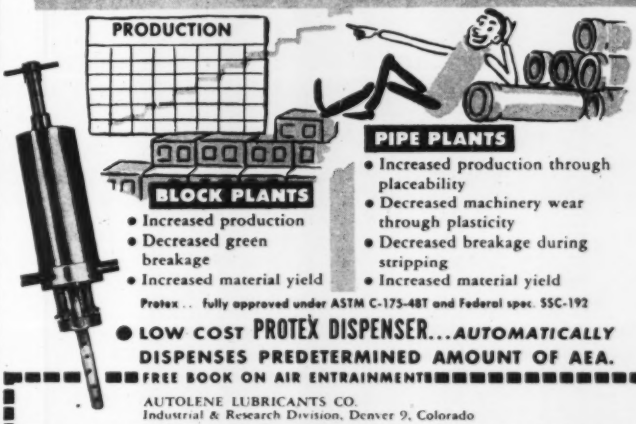

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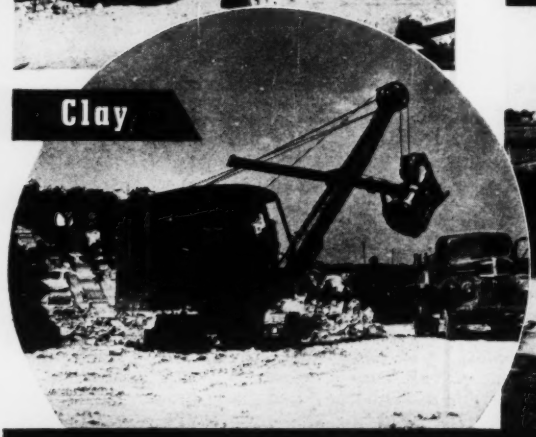

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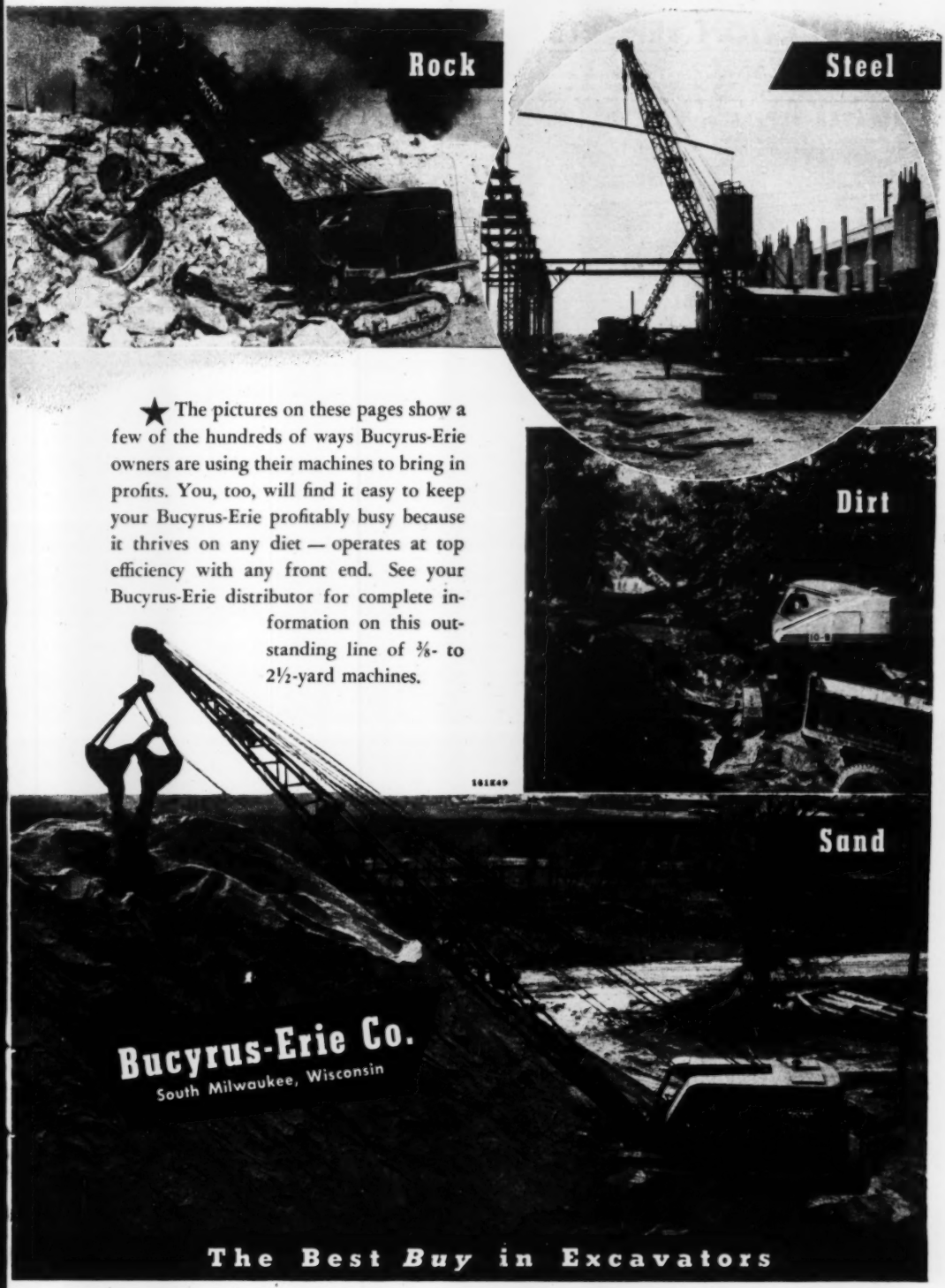

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WATER SUPPLY

●**Ind., Indianapolis**—Indianapolis Water Co., 113 Monument Circle, filtration plant, W. 16 St. **$2,900,000.** L. S. Finch, ch. engr.

Miss., Laurel—City, City Hall, voted **$250,000** bonds, WW imprvs. CD 3/18—ENR 4/14.

Neb., Tecumseh—City, voted **$190,000** bonds, water sys. imprvs. CD 3/21.

Pa., Walnutport—Walnutport Boro, Walnutport, water supply sys. **$350,000.** Grossart Eng. Service, 816 Chew St., Allentown, consult. engrs.

Tex., Galena Park—City, D. Stanley Warnell, mayor, defeated **$200,000** bonds WW sys. imprvs. and distr. lines exten. CD 3/24.

SEWERS, WASTE DISPOSAL

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, sanitary sewers in Navarro Ave., Altadena, **$117,200;** sanitary sewers in 130 St., Athens, **$178,000;** in Howland Dr., **$69,600;** Rowland Ave., **$129,400,** both Temple City. C. E. Arnold, co. engr. and surv.

Colo., Denver—City and Denver Co. City-County Bldg., district sewers, appurtenances for sanitary drainage in and for district to be known as East Side Sanitary Sewer Dist. 5, **$188,500.** Terry Owen, City-County Bldg., city engr. CD 11/25/45—ENR 12/13/45.

Ind., Fort Wayne—Comrs. Allen Co., Court House, sewage disposal plant, Irene Byron Sanatorium. **$200,000.**

Ia., Ames—City, City Hall, sewerage sys., to serve city of Ames, and Iowa State College, **$350,000.** F. R. White, ch. engr.

Kan., Newton—City, City Hall, voted **$250,000** bonds, sewage plant. H. R. Hunter, 105 W. English St., Wichita, engr. CD 4/18.

Mo., Olivette (St. Louis, Zone 5, P. O.)—Olivette Sanitary Sewer Dist., c/o C. Willard Max, atty., 8022 Forsyth St., Clayton, St. Louis, Zone 5, defeated $80,000 bonds, sanitary sewerage sys. **$133,825.** CD 3/21.

●**O., Defiance**—City, intercepting sewers, sewage treatment plant. Approx. **$1,000,000.** Finkbeiner, Pettis & Strout, 518 Jefferson St., Toledo, consult. engrs.

Pa., Glen Rock—Glen Rock Boro, Glen Rock, sewage treatment plant, sewerage sys. **$250,000.** Gannett, Fleming, Corddry & Carpenter, 600 N. 2 St., Harrisburg, consult. engrs. CD 6/18/47—ENR 7/10/47.

Tex., Galena Park—City, D. Stanley, Warnell, mayor, defeated **$150,000** bonds, sanitary sewerage sys. imprvs., and collection lines. CD 3/24.

Wis., Wauwatosa—Metropolitan Sewerage Comn. of Milwaukee Co., Milwaukee, Zone 1, 2,625 ft. 54 in. monolithic concrete, special sect., main sewer in Menomonee River Parkway from W. Capitol Dr. to W. Congress St. **$225,000.** James L. Ferebee, ch. engr.

BRIDGES

●**Calif., Pomona**—City, 295 W. 4 St., 2 underpasses at White and Towne Ave., **$1,000,000.** Quinton Engineers, Ltd., 816 S. Figueroa St., Los Angeles, consult. engr. and Fred C. Froehde, 205 W. 4 St., engr.

●†**Idaho** — P. Rds. Admin., Broadway-Oak Bldg., Portland, Ore.,
replacing 18 bridges Soda Springs-Freedom Hy., **$75,000.**
bridge over Blue Bay and 1.1 mi. approaches, North Pacific Hy. **$1,685,000.**
3 concrete bridges, Warren Wagon Rd., **$70,000.**

Neb., Falls City—Richardson Co., Falls City, 2 bridges across Nehama River **$100,000.** Ben Dale, co. engr.

●**Utah**—State Road Comn., Salt Lake City,
Carbon Co.—3 major and 2 minor bridges and acquiring right-of-way for 4 lane divided highway, U. S. 6 and 50 between Price and Helper, **$500,000.**
Cache Co.—bridge over Logan River at Mendon, **$40,000.**
Duchesne Co.—bridge and bit. road mix approach road over Duchesne River at Myton, 1 mi. **$175,000.**
Grand Co.—replace 2 timber bridges U. S. 50 and 6, Cisco-Colorado State Line, **$200,000,** replace bridges on U. S. 50 and 6, Green River-East, **$90,000.**
Uintah Co. — bridge over Uintah River, Neola-Lapoint, **$40,000.** CD 12/13/44—ENR 12/29/44.

●**Kan., Topeka**—City, City Hall, defeated **$1,750,000** bonds, Kansas Ave. Bridge, Finney & Turnipseed, New England Bldg., consult. engrs. CD 3/24.

Mississippi—State Hy. Dpt., Jackson,
Clay Co.—rebuilding 26 wooden bridges, Hys. 46, 47 and 10, **$300,000.**

●**Virginia**—State Hy. Dpt., Richmond,

Bristol District

Buchanan Co.—replace 12 narrow bridges with pipes, Route 83, Grundy-West Virginia Line, **$18,000.**
Grayson Co.—bridge over Chestnut Creek replacing wooden bridge, Route 89, **$10,000.**
Smyth Co.—lengthen, widen bridge over Hutton Creek at Mt. Carmel, Route 11, **$40,000.**
Washington Co.—remodeling Narrow Norfolk and Western Ry. underpass with dangerous approaches, east of Bristol, Route 11, **$150,000.**

Culpeper District

Culpeper Co.—replacing 2 narrow overpasses, Southern Ry. east of Culpeper, Route 3, **$75,000.**
Fairfax Co. — overpass and approaches Southern Ry. at Fairfax Station, Route 123, **$90,862.**
pedestrian underpass Southern and Richmond, Fredericksburg and Potomac Railroads near Int. Route 235, Route 241, **$22,666.**
Orange and Louisa Counties—completing project and replacing weak and narrow bridge over North Anna River, Route 522, Za Post Office-South, **$80,000.**

Richmond District

Petersburg City — repairing Appomattox River Bridge, Route 1, **$25,000.**
Richmond City—approaches to new Westham Bridge under constr. Route 147. **$20,000.**
wid'n. Atlantic Coast Line R. R. Belt Line overpass on Cary St., Route 147, **$25,000.**
remodel Richmond, Fredericksburg & Potomac R. R. overpass and construct south approaches, Boulevard Bridge, Route 161, **$55,000.**

Salem District

Bedford Co.—bridge, approaches Elk Creek, correcting hazardous situation at and adjacent to Elk Creek, Route 460, **$165,000.**
Henry Co.—relocation and construct bridge over Smith River and approaches at Bassett, Route 57, **$175,000.**
Roanoke City—½ cost of new bridge over Peters Creek at West Corporate Limits of Roanoke, Route 460, **$40,000.**

Staunton District

Augusta and Rockingham Counties — new bridge and relocation dangerous approaches to South River at Grottoes, Route 256, **$150,000.**
Page and Rockingham Counties—relocation and replacement Narrow Bridge and hazardous approaches at Naked Creek, Route 12, **$75,000.**
Rockbridge Co.—bridge, approaches Maury River, Route 39, **$80,000.**
bridge, approaches South River at Vesuvius, Route 56, **$60,000.**
Shenandoah Co.—bridge, approaches Narrow Passage Creek, Route 11, **$75,000.**
wid'n narrow bridge, approaches Pugh's Run, **$40,000.**
Warren, Shenandoah and Frederick Counties—bridge, approaches Cedar Creek, Route 11, **$210,000.**

Suffolk District

Norfolk City—grade separation, Norfolk and Western Ry. on Monticello Ave., Route 170, **$200,000.**
Surry Co.—bridges over Lower Chippoak Creek and College Run, Route 10, **$30,000.**
Sussex and Surry Counties—bridges, approaches Blackwater and Otterdam Swamps, east of Waverly, **$100,000.**
Warwick Co.—hand railings 39 Street bridge at East Corporate Limits Newport News, Route 351, **$20,000.**
Wash., Allentown—King Co., County-City Bldg., Seattle, Zone 4, bridge over Duwamish River, **$125,000.** C. Arnold, New World Life Bldg., Seattle, Zone 4, consult. engr. D. L. Evans, co. engr.

STREETS AND ROADS

●**Ark., Little Rock**—City, river front drive and 2 ramps to Broadway bridge. **$1,000,000.** Paul M Zander, city engr.

†**Idaho** — P. Rds. Admin., Broadway-Oak Bldg., Portland, Ore.,
surf. 12.9 mi. Warm River-Yellowstone Hy., **$200,000.**
grading 5 mi. Strawberry-Sharon Hy., **$190,000.**
9 mi. Salmon-Montana Line Hy., **$250,000.**
3 mi. McCall-Stibnite Hy., **$135,000.**
clearing 6 mi. Lewis and Clark Hy., east end, **$35,000.** W. H. Lynch, div. engr., CD 3/4/43—ENR 3/11/43.

O., Painesville — Comrs. Lake Co., Painesville, imprv. 24 roads, incl. resurfacing 27.6 mi. 18 roads; drag treatment 3.7 mi. two roads, **$49,400.** bit. 4.2 mi. four roads in Leory Twp., **$68,760.** R. M. Plummer, co. engr. CD 11/18/43—ENR 11/25/43.

●**Utah** — State Road Comn., Salt Lake City, Box Elder Co.—road mix bit. 17.6 mi. Corrinne-Lampo, **$100,000.**
Cache Co.—grav., road mix bit. 5 mi. Hyrum-Mt. Sterling, **$75,000.**
Duchesne Co.—grav., oiling 9.5 mi. Upalco Junction-Altamont, **$160,000.**
Emery Co.—graveling, oiling 11.1 mi. Cleveland Loop, **$140,000.**
Garfield Co.—grav. 2 mi. Escalante-Henrieville, **$200,000.**
Grand and La Salle Counties—grav., bit. road mix. 2 mi. U. S. 160 between Moab and Monticello, Kane Springs Dugway, **$150,000.**
Kane Co.—grav., oiling 4.3 mi. U.S. 89-Alton, **$35,000.**
Millard Co.—bit. road mix. 27 mi. U.S. 6, Hinkley-Nevada State Line, **$120,000.**
Piute Co.—grav., oiling 8 mi. Kingston Canyon-Antimony, **$75,000.**
Rich Co.—grav., bit. road mix. 6.6 mi. Road 3, Sage Cr. Junction-Laketown, **$185,000.**
Salt Lake Co.—road mix. bit. 6 mi. Blvd. from 33 South St. to Big Cottonwood Canyon, Wasatch Blvd., **$140,000.**
grav., oiling 1.5 mi. 39 South and 23 East Sts. to Wasatch Blvd. **$40,000.**
Sanpete Co.—grav., oiling 8.7 mi. Spring City-Wales, **$110,000.**
Sevier Co.—grav., oiling 6.4 mi. Koosharem-State Road 24, **$110,000.**
road mix bit. 3 mi. Elsinor-South, **$30,000.**
grav., bit. road mix 4 mi. Utah 10, at Canyon Summit, Salina Canyon, **$260,000.**
Summit Co.—grav. 4.5 mi. Kamas-Wasatch Natl. Forest Boundary, **$100,000.**
Tooele Co.—plant mix bit. surf. 5 mi. U.S. 40 and 50, Lakepoint-Mills Junction, **$90,000.**
grav. 6 mi. Vernon-St. John, **$100,000.**
Utah Co.—road mix bit. 4.8 mi. U.S. 50, Springville-Moark, **$260,000.**
grav., oil surf. 5.6 mi. Alpine Junction-U.S. 91, **$150,000.**
grav., road mix bit. 1.6 mi. Lehi West, **$40,000.**
Wasatch and Summit Counties—road mix bit. 7.7 mi. Hailstone-Francis, **$110,000.**
Washington Co.—road mix bit. 5 mi. New Harmony, **$85,000.**
Weber Co.—plant mix bit. 5.4 mi. double lane on U.S. 89, Uintah-Ogden, **$500,000.**
plant mix bit. surf. 1.1 mi. Harrison Ave., Ogden, **$50,000.**
grav., plant mix bit. 4 mi. along Utah 4 to Silver Cr. Canyon and relign and surface Parleys Park Canyon Joint with U.S. 30, Kimball Junction, **$220,000.** CD 5/10/44—ENR 5/18/44.

●**Virginia**—State Hy. Dpt., Richmond,

Bristol District

Bland Co.—short revision extremely dangerous curve at Bastian and strengthening Weak Rd. exten. approx. 3 mi. north, **$57,000.**
resurf. weak road, Rocky Gap-North, **$9,000.**
exten. present work which will complete unimproved gap, Smyth Co. Line-East, **$125,000.**
stabil. and oil non-hard surface road, Route 42-Pulaski Co. Line, Route 99, **$44,000.**
Bristol City—curb, gutter and wid'n., State St. Route 11, 19 and 421, **$40,000.**
Dickenson Co.—reconstruct of narrow and crooked road between Fremont and Dante, Route 64, Fremont-South, **$120,000.**
wid'n., reconstruct 10 ft. road which is tight between high bluff and the river, Route 80, Haysi-South, **$125,000.**
Grayson Co.—supplemental allocation to extend construction of unimproved road now underway between Volney and Damascus, Route 58, Washington Co. Line-East, **$250,000.**
Lee Co.—reconstruct portion narrow 10 ft. road constituting main bottleneck between Bristol and Cumberland Gap, Route 58, Dot towards Jonesville, **$250,000.**
complete reconstruction narrow and inadequate route subject to heavy traffic, Route 66, Stone Creek-Pennington Gap, **$200,000.**
wid'n. 0.3 mi. in town of St. Charles, Route 352, **$25,000.**
Russell Co.—exten. present contract which consists of wid'n and provision for sidewalks, Route 19 and 71, Lebanon-West, **$34,000.**
wid'n. very short but hazardous bottleneck, Route 64, Hamlin, **$15,000.**
wid'n., relocate narrow and crooked gap, Route 64, Dickensonville-Lawsons Store, **$120,000.**
Scott Co.—supplements previous allocation to complete unsurfaced gap, Route 72, Int. Route 71-North, **$40,000.**
Smyth and Tazewell Counties—construct and reconstruct to open up part of route not travelable, Route 16, Route 42-North and South, **$100,000.**
Tazewell Co.—relocation at East Corporate Limits to correct reverse curb and bad drainage, Route 19, **$10,000.**
relocation and reconstruction narrow and crooked 16 ft. road carrying heavy traffic Route 19, West Tazewell-West, **$300,000.**
Washington Co.—supplements previous allocation for wid'n., strengthening present road, Route 19, Abingdon-North, **$12,000.**
bit. Route 19, Russell Co. Line-South, **$22,000.**
strengthening Route Alt. 19 from Abingdon-North, **$6,000.**
supplemental allocation for work now underway on unimproved road between Volney and Damascus, Route 58, Grayson Co. line-Damascus, **$90,000.**
supplemental allocation to complete proj. from Tennessee Line to south of Damascus, Route 91, Tennessee Line-South Damascus, **$40,000.**
exten. proposed rural proj. providing wid'n., strengthening present street, Route 19, town of Abingdon, Int. Route 11-North Corporate Limits Abingdon, **$13,300.**
Wise Co.—wid'n short extremely bad bottleneck at west entrance to Appalachia, Route 23 and 70, **$50,000.**
make a start toward eventual relocation of Route 70 within Norton, Alt. Route 70, Town of Norton, Kentucky Ave. and 12 St., **$25,000.**
Wythe Co.—bit. Route 11, Pulaski Co. line through Carter Memorial Wayside, **$49,000.**
supplemental allocation for relocation of weak and narrow road between Wytheville and

(Continued on page 130)

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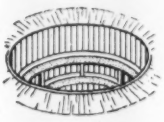

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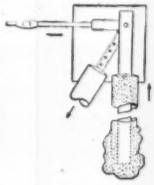
PROBLEM: To provide a bulkhead of adequate strength where proximity of structures or sliding ground makes the usual buried anchorage impractical. For use with steel sheet pile bulkheads, WESTERN introduced a rigid A-Frame tie-back utilizing a vertical tension resisting Pedestal Pile in combination with a batter pipe or H-Beam compression pile. Pedestal Piles have been tested to 160 tons tension resistance.



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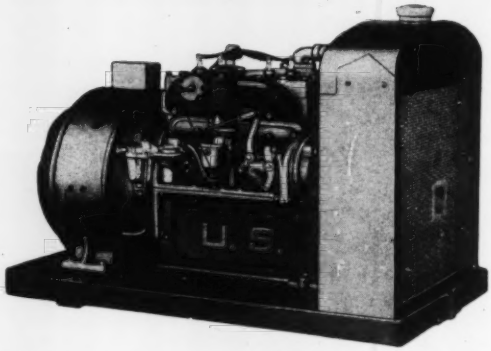

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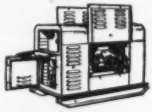

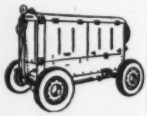

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(Continued from page 128)

22 ft. pavement approx. 3.2 mi. north, Route 21, Wytheville-North, **$94,000.**

reconstruct and relocate heavily traveled truck route, that is weak, narrow and crooked, Route 52, Jacksons Ferry-North, **$200,000.**

supplemental allocation to complete work now underway, Route 94, North Ivanhoe-Route 52, **$30,000.**

exten. proposed rural proj. providing for reconstruction to curb and gutter sect., Route 21, Town of Wytheville-Fourth St., **$6,000.**

Culpeper District

Albemarle Co.—exten. proposed wid'n. and resurf. South of Charlottesville, Route 20, **$60,000.**

roads in grounds of University of Virginia, Route 302, **$86,376.**

Arlington Co.—provision safety refuge on heavily travelled Lee Blvd., Route 50, Channelization at Park Dr., **$12,000.**

connecting ramp preventing interference between left turn traffic and through traffic on Lee Blvd., Route 50, Interchange at Carlyn Springs Rd., **$12,000.**

construction providing connection between end of George Washington Parkway and Lee Hy., Route 124, Route 211, Lee Hy-Spout Run Dr., **$60,000.**

Arlington and Fairfax Counties—reconstruction to 4-lanes of Short Gap between West Corporate Limits Alexandria and Shirley Hy., Route 7, **$60,000.**

Alexandria-West, Route 7, **$46,181.**

Culpeper Co.—wid'n., reconstructing narrow 10 ft. road, Route 229, Culpeper-North, **$148,000.**

Fairfax Co.—wid'n., resurf. 16 ft. road, Route 836, West Shirley Hy.-Annandale, **$112,000.**

wid'n., resurf. 18 ft. road, Route 244, Annandale-Baileys Cross Roads, **$120,000.**

interchange at Fort Buffalo, Route 50, **$26,125.**

Fauquier Co.—wid'n. and strengthen present narrow and weak road, Route 15, Opal-Warrenton, **$90,000.**

Loudoun Co.—completing gap in and adjacent to Lovettsville, Route 287, Lovettsville North and South, **$65,000.**

continuation of reconstruction Route 7 towards Leesburg, **$200,000.**

Orange Co.—complete reconstruction present road which has continuous non-passing sight distance Route 15, Orange-North, **$100,000.**

wid'n., reconstruct present inadequate road, Route 20, Orange-West, **$100,000.**

Orange and Louisa Counties—Za Post Office—South, Route 522, **$114,166.**

Prince William Co.—supplement current allocation to extend work underway toward completion of new road to Route 211, Route 15, Haymarket North and South, **$200,000.**

exten. work underway providing hard surfaced road between Route 15 and Manassas, Route 234, Stone House-Int. Route 15, **$117,000.**

Richmond District

Richmond City—resurf., reconstructing Hull Street-South, Route 1, **$40,000.**

reconstruction or resurf. Chamberlayne Ave., Route 1, **$50,000.**

Salem District

Bedford Co. — supplemental allocation to complete project now underway, Route 24, Campbell Co. line-West, **$80,000.**

wid'n., 12 ft. road exten. north from Bedford towards Peaks of Otter, Route 43, Bedford-North, **$69,238.**

complete reconstruction dangerous intersection, Route 122, Int. Route 24, **$35,000.**

Botetourt Co.—bit. resurf. Route 11, Rockbridge Co. line-South, **$40,000.**

Craig Co.—supplemental allocation to complete work underway on unimproved road, Route 42, West New Castle-West, **$50,000.**

Floyd Co.—spot resurf., correcting weak places, Route 221, Carroll County Line-East, **$45,000.**

Franklin Co.—exten. work underway on unimproved road, Route 40, West Ferrum-West, **$85,000.**

bit. resurf. streets in Rocky Mount, Route 220, **$13,000.**

Giles Co.—construction on presently unimproved road between Narrows and Rocky Gap, Route 61, West Narrows-West, **$50,000.**

Henry Co.—major reconstruction of very crooked road from west of Martinsville towards Stuart, Route 58, Intersection Route 220 W. of Martinsville-West, **$200,000.**

bit. resurf. Route 220, Martinsville-North, **$35,000.**

Montgomery Co.—continuation of 4 lane construction on heavily traveled road between Salem and Christianburg, Route 11, West Ellistion-West, **$250,000.**

construct road from Route 460 to Parade Grounds at Virginia Polytechnic Institute, Route 314, **$50,000.**

roads in grounds of Radford State Teachers College, Route 255, **$8,000.**

Patrick Co.—exten. work underway on unimproved road, Route 40, Franklin Co. line-West, **$72,000.**

Pulaski Co.—reconstruct to 4 lanes of 2 lane bottleneck between New Radford Bridge and 3 lane road at Morgan's cut, Route 11, West Radford-West, **$349,260.**

supplements previous allocation for curb and gutter, sidewalks and widening, Route 99, Town of Pulaski, Randolph St., **$29,000.**

Radford City—curb, gutter, wid'n. Route 11, Norwood Ave., **$10,000.**

Roanoke Co. — exten. dual Hy. south from Roanoke towards Rocky Mount, Route 220, South Roanoke-South, **$300,000.**

(Continued on page 133)

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(Continued from page 130)

exten. work underway on Catawba Mountain, Route 321, Catawba Mountain Revision, **$125,000.**

complete gap between proposed Urban Proj. and Route 117, Route 460, Peters Creek (West Corporate Limits Roanoke)-Int. Route 117, **$50,000.**

Staunton District

Alleghany Co.—exten. work to stabilize and hardsurface unimproved road, Route 18, Craig Co. Line-North, **$50,000.**

bit. resurfacing West Virginia Line-East, Route 60, **$60,000.**

Alleghany and Bath Counties—supplements current allocation to build hardsurface road and replace dangerous bridges on unsurfaced road, Route 268, Alleghany-Bath Co. Line-North and South, **$59,000.**

Augusta Co.—bit. resurf. Route 12, Waynesboro-Greenville, **$80,000.**

completing portion of new Staunton Distr. Road outside city limits, Alt. 11, North Corporate Limits Staunton-Int. Route 11, **$83,000.**

bit. resurf. Route 250, West Waynesboro-West, **$8,000.**

supplements present allocation to reconstruct narrow and crooked road, Route 252, South Staunton-South, **$31,000.**

Augusta and Rockbridge Counties—bit. Route 11, Steeles Ravern-South, **$47,000.**

Bath Co.—supplement and exten. present constr. of new road replacing unimproved road, Route 39, West Virginia Line-East, **$198,000.**

Frederick Co.—supplements present allocation for modification of curves and wid'n. road, Route 50, West Virginia Line-East, **$50,000.**

supplements present allocation for wid'n. road east of Winchester, Route 50, Winchester-East, **$ 0,000.**

Highland Co. — stabilizing, hardsurfacing present unimproved Route 249, South McDowell-South, **$50,000.**

Rockbridge Co.—continuation of conversion of 2 lane road to 4 lane divided standards, Route 11, Fairfield-South, **$225,000.**

roads in grounds of Virginia Military Institute, Route 303, **$32,802.**

relocation severe and dangerous reverse curve, south of Buena Vista, adjacent to long approaches of high speed road, Route 501, Relocation of Camden Creek, **$43,115.**

Rockingham Co.—exten. proposed reconstruction of narrow and crooked road between Harrisonburg and Broadway, Route 42, north of Harrisonburg towards Broadway, **$100,000.**

completing Route 259 into Broadway, incl. bridge over Linville Creek, Route 259, **$150,000.**

Shenandoah Co.—reconstruct and hardsurface unimproved road north of Forestville, Route 42, North Forestville-North, **$150,000.**

flashing light signals Baltimore & Ohio R.R. west of Strasburg, Route 55, **$5,000.**

Suffolk District

Accomac Co.—bit. resurf. north bound lane, Route 13, Maryland Line-South, **$30,000.**

continuation 4-lane construction between Maryland Line and Accomac, Route 13, South Oak Hall-South, **$300,000.**

Elizabeth City—supplements of previous allocation for provision of 4-lane highway, Route 134, Hampton-West, **$80,000.**

Elizabeth City and York Co.—wid'n., reconstruct narrow and crooked road, Route 172, Route 134-Messick, **$153,000.**

Hampton City—exten. proposed rural proj. providing 4-lanes with curb, gutter and sidewalks, Route 134, Liberty St. and Armistead Ave., **$14,000.**

Isle of Wight Co. — revision curve east of Franklin, Route 48, **$90,000.**

Nansemond and Southampton Counties—exten. heavy duty surface south towards Route 258, Route 189, South Holland-South, **$211,000.**

Newport News City—reconstruct and wid'n. to curb and gutter sect. Route 167, 16 St. and Jefferson Ave., Marshall St., **$40,000.**

Norfolk and Princess Anne Counties—supplemental allocation for relocation of Water Works Rd., between Norfolk and Diamond Springs, Route 13, East Norfolk-East, **$55,000.**

Princess Anne Co.—continuation controlled access highway on Virginia Beach Blvd. Route 58, East Norfolk-East, **$300,000.**

Southampton Co. — bit. resurf. Route 35, Courtland-Sussex Co. line, **$40,000.**

continuation of heavy duty surfacing replacing surface treated soil on heavily traveled truck route, Route 58, West Drewryville-West, **$175,000.**

completing project, Route 308, through Southampton Farm, **$40,000.**

Warwick Co.—sidewalk on and adjacent to bridge and superelevation of an approach curve near Mariners Museum, Route 60, **$25,000.**

Williamsburg City—wid'n. to curb and gutter sect. Page and York Rds. Routes 31, 168 and 60, **$25,000.**

York and Warwick Counties—supplements previous allocation to complete reconstruction to heavy duty standards of surface treated soil road between Tabbs and Morrison, Route 17, South Tabbs-Int. Route 168, **$175,000.**

●♦**Washington**—Pub. Roads Admin., Broadway-Oak Bldg., Portland, Ore., grading, surf. 6 mi. Olympic Hy., **$188,000**; grading 1 mi. Mt. Baker Hy., **$75,000**; grading 3.5 mi. South Fork Stillaguamish Hy. **$230,000**; grading 10.5 mi. Randle-Yakima Hy. **$561,000**; oiling 6 mi. Lewis River Hy., **$25,000**; surf. oiling 7 mi. Mt. Adams Hy., **$165,000**; grading, surf. oiling 17.5 mi. Republic-Kettle Falls Hy., **$750,000**; grading, surf. oiling 2.5 mi. Lake Chelan Hy. **$100,000**; grading, surf. 1 mi. Cascade-Wagon Rd. **$45,000.** CD 10/26/45—ENR 1/10/46.

Wash., Seattle—City, County—City Bldg., Zone 4, paving Commodore Way, **$158,400;**

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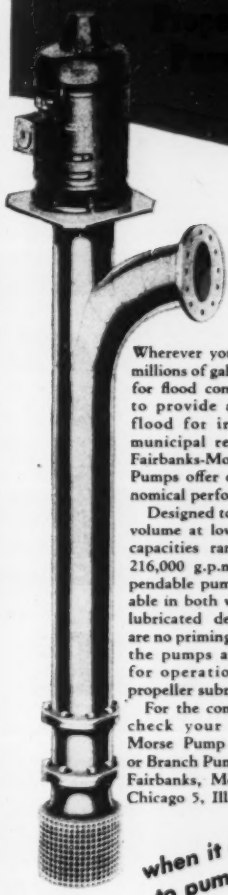

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Brandon St., **$24,378**; grading 39 Ave. W. **$10,222.** R. W. Finke, city engr.

Wash., Seattle—City, County-City Bldg., Zone 4, surf. 64 Ave., S.W., Alki Ave. and Beach Dr., **$150,000**; wid'n, paving Harbor Ave. S.W. from Mexico to Florida Sts. **$107,-694.** R. W. Finke, city engr.

EARTHWORK, WATERWAYS

Tex., Llano—Llano Soil Conservation Dist., Llano, terracing, drainage, etc. **$100,000.**

†Washington—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, flood control imprvs., Yakima River, vicinity of Ellensburg. Serial No. Eng-45-108-49-142.

AIRPORTS AND AIRBASES

●†Ariz., Williams Field (P.O. Chandler)—HOUSING—U. S. Eng., 751 S. Figueroa St., Los Angeles 55, Calif., 500 brick homes for rental to army personnel. **$3,000,000.** CD 11/29/46—ENR 12/12/46.

PUBLIC BUILDINGS

Calif., Gonzales—Gonzales Union High School Dist., Gonzales, **$350,000** bond election May 20, high school.

●Calif., Los Angeles—City Bd. P. Wks., 152 City Hall, plans by Samuel E. Lundeen, 400 Rowan Bldg., health department and receiving hospital, **$6,500,000.** CD 3/14/46—ENR 6/13/46.

●Calif., Salinas—Salinas Valley Memorial Hospital Dist., Salinas, voted **$2,000,000** bonds, 6 story, 105,592 sq. ft. floor area, rein.-con. 133 bed hospital. Robert Stanton, Carmel, archt. CD 12/23/46—ENR 1/9/47.

Conn., Danbury—State Bd. Educ., 358 Bellevue St., Hartford, plans by Walter J. Campbell, **337 Main St.**, brick, steel science laboratory, Danbury State Teachers College. **$900,000.** CD 1/13—ENR 2/3.

●Calif., Merced—Merced Union High School Dist., 19 and G Sts., **$1,150,000** bond election May 20, new bldgs. at Merced High School and Livingston High School. CD 11/17—ENR 12/9.

●Ill., Carlinville—Carlinville Hospital Assn., Carlingville, plans by Consoer Townsend & Assoc., Times Bldg., 351 E. Ohio St., Chicago. 50-bed brick, stone hospital. Approx. **$1,000,000.**

●Ill., Effingham—Effingham Civic Foundation, City Hall, rein.-con., brick, steel, stone hospital. **$2,500,000.**

Ill., Mount Vernon—School Dist. 80, Mount Vernon, plans by McCoy & Wilson, 1108½ Main St., Mann, Lincoln, Edison and Washington Grade School bldgs. addns., alterations. **$800,-000.**

Ia., Ames—Independent School Dist. of Ames, Bd. Educ., Frank B. Howell, secy., **$700,000** bond election May 2, 2 rein.-con. brick schools. Tinsley, Higgins & Lighter, 526 Liberty Bldg., Des Moines, archts. CD 2/18—ENR 3/17.

●Ia., Dubuque—City and Dubuque Co., plans by Doucher, Rich & Woodburn, 302 Carver Bldg., Des Moines, Zone 9, city and county bldg., incl. county courthouse, city hall and jail, **$2,515,000.** CD 6/30/47—ENR 7/24/47.

●Ia., Marshalltown—Independent School Dist. Ed. Educ., G. W. Short, secy., 203 Masonic Temple, plans by Doucher, Rich & Woodburn, Garver Bldg., Des Moines, brick, concrete, stone school, 2 bldg. addns. **$1,000,000.** CD 3/24—ENR 4/14.

●Kan., Great Bend—Bd. Educ., Great Bend, voted **$1,256,700** bonds, high school. CD 8/13/47—ENR 9/4/47.

●Kan., Kansas City—University of Kansas Medical Center, Kansas City, Kan., and c/o Charles L. Marshall, state archt., State House, Topeka, 5 brick, concrete, stone bldgs., 2 bldg. addn., **$3,800,000.** CD 2/20—ENR 5/16/46.

Kan., Liberal—Bd. Educ., Liberal, voted **$500,000** bonds, high school addn. CD 3/7—ENR 3/31.

●Kan., Wichita—City, C. C. Ellis, clk., City Hall, defeated **$5,000,000** bonds brick, steel, concrete, stone municipal auditorium. Project postponed indefinitely. CD 3/17—ENR 3/31.

N. J., Pitman—Dpt. of The Armory, Armory Dr., armory. **$250,000.** Col. H. L. Mack, owners representative in charge.

O., Kent—Kent State University, G. A. Bowman, pres., plans by H. A. Fulton, University archt., 1 and 2 story, 230x190 ft. practical arts bldg. **$850,000.** CD 12/30/48—ENR 1/20/49.

O., Willoughby—Village, war memorial to comprise athletic field, swimming pool and community center. **$500,000.**

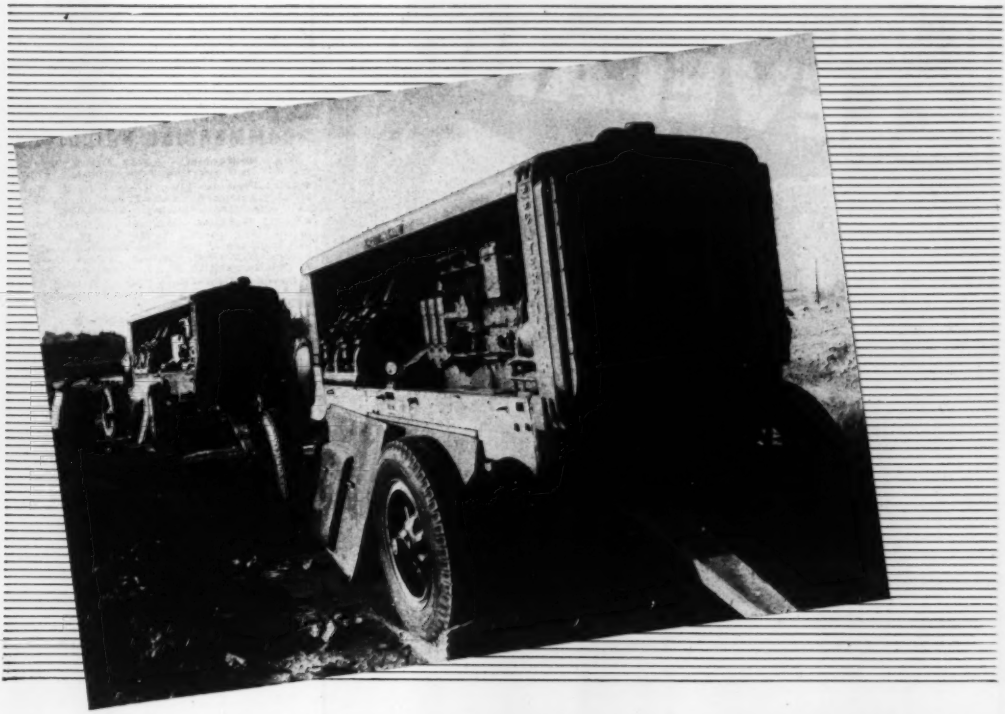
●Tex., Corsicana—Navarro Co., c/o Comrs. Court, Joe D. Huffstutler, judge, voted $550,000 bonds; 100 bed memorial hospital. **$1,200,000.** CD 3/29—ENR 4/14.

●Tex., Nederland—Nederland Independent School Dist., Mark A. Matthews, supt., Nederland, plans by Maurice E. Walmer, Gilbert Bldg., Beaumont, masonry, glazed tile interior, concrete, steel school, concrete slab fdn. **$1,-000,000.** Howard Johnson Kelley, Esperson Bldg., Houston, consult. engrs.

●Va., Roanoke—Roanoke City School Bd., 211 Church Ave. S. W., Negro Senior High School, **$1,000,000**; Woodrow Wilson School addn., **$500,000.** CD 2/23/45—ENR 4/5/45.

Wash., Pullman—School Bd., Pullman, high school addn. **$500,000.** CD 6/14/46—ENR 7/25/46.

(Continued on page 136)



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(Continued from page 134)

Wis., Shawano — Shawano Co., Shawano, plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Ill., 2½ story courthouse and jail. **$625,000.**

●**Philippines, Luzon**—Republic of the Philippines, Manila, fertilizer plant. **$2,500,000.**

●**Quebec**—Dominion Govt., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., central hydro electric power plant, between Moffat's Island and Island of Montreal, **$250,000,000.**

COMMERCIAL BUILDINGS

Ala., Montgomery—Aaron Aaron, Montgomery, 132 unit apartment development, **$730,000.**

●**Ariz., Phoenix**—Owner, c/o John A. Murphy, archt., Telephone and Telegraph Bldg., 350 unit apartment housing. **$3,000,000.**

●**Calif., Oakland**—Oakland Chamber of Commerce, 417 14 St., plans by W. D. Peugh, 333 Montgomery St., San Francisco, 500 room hotel. **$8,923,000.** Hilton Hotels Corp., 639 S. Commonwealth St., Los Angeles, lessee.

Conn., Bristol—Boys Club of Bristol, Charles Murphy, dir., Bristol, brick, concrete club addn., **$250,000.**

Del., Wilmington—St. Joseph's R. C. Church, 1012 French St., plans by Gleeson & Mulrooney, 1612 Market St., Phila., Pa., high school. **$250,000.**

Ga., Macon—Y. W. C. A., c/o Dennis & Dennis, archts., Bankers Insurance Bldgs., Y. W. C. A. bldg., Approx. **$250,000.**

●**Ill., Chicago**—McCormick Management Corp., 332 S. Michigan St., plans by Holsman, Holsman, Klekamp & Taylor, 36 S. State St., Pace Assoc., 53 W. Jackson Blvd., and Ludwig Mies Vander Rohe, 37 S. Wabash St., 25 story, steel, concrete twin apartments, Lakeshore Dr., Delaware and Chestnut Sts. **$5,670,000.** Herbert S. Greenwald, 105 W. Admas St., engr.

●**Ill., Chicago**—Trust Co. of Chicago, 104 S. La Salle St., plans by Pace Assoc., 53 W. Jackson Blvd., 284 unit two brick, glass, steel cooperative apartment bldgs. **$5,675,000.**

●**Ia., Des Moines**—Drake University, 25 and University Aves., plans by Saarinen, Saarinen & Assoc., Bloomfield Hills, Mich., dormitory. **$1,500,000;** journalism bldg., **$350,000.** CD 5/24—ENR 5/30/46.

Ia., Grinnell—Trustees of Iowa College, Grinnell College, Grinnell, plans by Dougher, Rich & Woodbury, 302 Garver Bldg., Des Moines, 3 story mens dormitory, **$500,000.** B. E. Landes and Louis V. Phelps, Grinnell, engrs.

●**Minn., Minneapolis**—Minneapolis & St. Louis Railway Co., C. S. Weatherill, ch. engr., Northwestern Bank Bldg., 2 story office, Franklin Ave. between 1 and Stevens Aves. **$1,000,000.**

●**Mo., Kansas City**—Hotel Muehlebach, Barney L. Allis, pres., 12 and Baltimore Sts., Kansas City, Mo., plans by Neville, Sharp & Simon, 1221 Baltimore St., Kansas City, Mo., 12 story, 80x138 ft. hotel addn. **$2,000,000.**

Mo., Kansas City—Moshar Zkeinim Home for Aged Society, Kansas City, plans by Kivett & Meyers, 1016 Baltimore St., Kansas City, Mo., 3 story, 48x52x79x165 ft. T-shaped, brick, Home for Aged, 78 and Homes St. **$600,000.**

Mo., St. Louis — Bd. Trustees, Frisco Employees Hospital Assn., c/o St. Louis-San Francisco Railway Co., Springfield, brick, concrete Frisco Hospital addn., alteration, 4960 Laclede Ave., **$625,000.**

●**N. Y., Albany**—W. T. Grant Co., 1441 Broadway, New York, Zone 18, department store, 63-67 N. Pearl St. **$1,000,000.**

●**N. Y., New York**—Syndicate, Julius Peribinder, pres., 19 W. 44 St., Zone 18, plans by Sylvan Bien, 565 Fifth Ave., Zone 17, 17 story apartment, at site of former Schwab house at Riverside Dr. from 73 to 74 Sts. **$15,000,000.**

●**O., Cincinnati**—Valley Realty Co., c/o Lottie Kelsey, 36 Hartwell Ct., 250 prefabricated residences. **$2,000,000.**

●**O., Cleveland**—Syndicate c/o Wm. Bauer, c/o Lakewood Motors Inc., 16000 Detroit Ave., shopping center, on 10-12 acre site fronting Warren Rd. bounded on N. E. by Roseland Ave. and S. W. by line 150 ft. southwest of W. 153 St., etc. **$3,500,000.**

●**O., Solon**—Moreland Hills Co., Jackson Rd., Cleveland, fifty 1½ story, bsmnt., 32x70 ft. frame residences in Chagrin Valley. Approx. **$1,000,000.**

O., Toledo — Congregation B'nai Israel, S. Friedenthal, pres., 2160 N. 12 St., synagogue at Collingwood Blvd. near W. Bancroft Sts. **$450,000.**

●**Pa., Phila.**—Federation of Jewish Charities, 1411 Walnut St., plans by Roth & Fleisher, 1420 Walnut St., Home for Aged, **$1,000,000.** Loewenberg & Loewenberg, 111 W. Monroe St., Chicago, Ill., consult. archts.

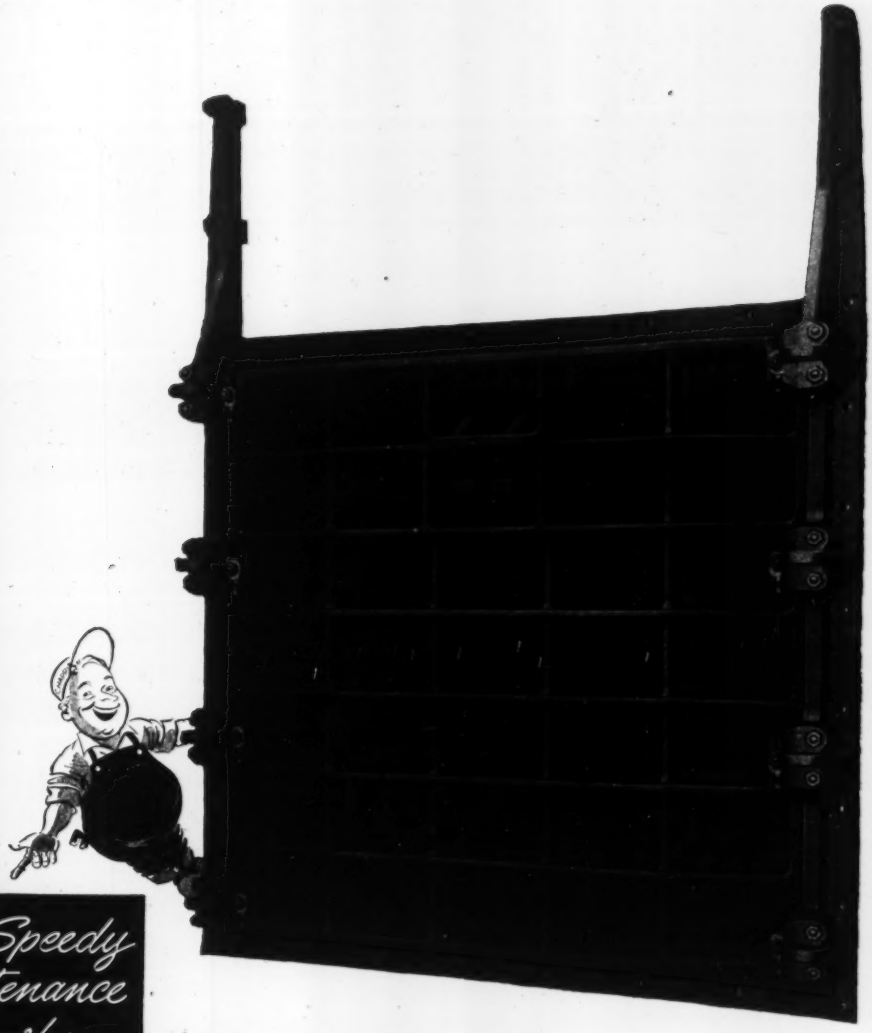
●**Pa., Pottsville**—Pottsville General Hospital, c/o James Kirk, Pottsville, plans by The Baltinger Co., 121 N. Broad St., Phila., brick hospital addn. **$1,000,000.** CD 1/21/48—ENR 2/19/48.

●**Tenn., Memphis**—Collins Chapel Hospital, c/o Estes Mann, archt., Shrine Bldg., hospital. **$1,700,000.** CD 11/14/47—ENR 11/27/47.

Tenn., Memphis—Goldie Apartments, 1028 N. Hollywood St., apartment development. **$800,000.**

Tenn., Memphis—Linden Avenue Christian Church, c/o Walk C. Jones-Walk C. Jones,

(Continued on page 138)



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(Continued from page 136)

Jr., archts., 1215 Poplar Ave., church. Approx. $500,000. CD 7/27/45—ENR 8/9/45.

Tex., Waco—Baylor University Waco, plans by Guy Carlander, Amarillo, 2 story with 10 story tower, brick, stone, steel Tidwell Memorial Bible Bldg., concrete pier and beam fdn., 22x110 ft. colored glass window. $700,000. CD 12/6/44—ENR 12/28/44.

Wash., Seattle—E. C. Swanson, 6035 27 Ave. N. E., plans by Stuart & Durham, 1100 Denny Way, $1 two story, concrete, masonry, frame apartments in nine groups. $700,000.

●**Wis., Milwaukee** — Columbia Hospital, 3321 N. Maryland Ave., Zone 11, plans by Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, hospital addn. $1,000,000.

Wyo., Laramie—Plains Hotel System, c/o F. Elton Davis, Laramie, plans by Kem Webber, Santa Barbara, Calif., Conner Hotel addns., alterations. $750,000.

●**B. C., West Vancouver**—British Properties, 355 Burrard St., Vancouver, plans by C. B. K. Van Norman, 540 Seymour St., Vancouver, and J. C. Page, 101 W. Hastings St., Vancouver, rein.-con. shopping center, incl. department store, super market, theatre, arena, etc., $1,500,000.

Ont., Ottawa—Perley Home, Alymer Ave., Hospital for Incurables addn. Approx. $800,000.

Ont., Ottawa—St. Vincent Hospital Rd., Cambridge St., hospital addn. Approx. $800,000.

●**Que., Montreal**—La Societe des Artisans Canadien Francais, 920 St. Denis St., plans by H. S. Labelle, 3 Kelvin Ave., Outremont, 5 story, bsmnt., 190x250x261 ft., concrete, steel, brick commercial bldg. $2,000,000.

INDUSTRIAL BUILDINGS

●**Ark., North Little Rock**—PLANT—Arkansas Power & Light Co., Pine Bluff, Lynch Plant expansion, near here. $5,000,000.

Calif., South Gate—PLANT—Purex Corp. Ltd., 9300 Rays Ave., 1 story, 83x101 ft. steel frame bldg. $100,000. David R. Edwards, 5911 Pine Ave., Maywood, engr.

Del., Wilmington — PLANT — News-Journal Co., Orange and Girard Sts., will not construct newspaper printing plant addn. $500,000. Project abandoned. CD 1/10—ENR 2/3.

Kan., Leoti — GRAIN ELEVATOR — C. D. Jennings, Grain Co., Hutchinson, grain elevator. $300,000.

●**Minn., South St. Paul**—FREIGHT YARDS—Chicago Great Western Ry. Co., W. C. Groth, ch. engr., 209 W. Jackson Blvd., Chicago, Zone 6, Ill., freight yard, south of Union Stockyards, incl. engine house, telegraph office, yard office, storage, etc. $2,500,000.

N. Y., New York—GARAGE—Charles A. Buckley, 21 W. 192 St., Zone 63, plans by William A. Gliesen, c/o owner, public garage, Jerome Ave. near Bedford Park Blvd. $266,017.

O., Cleveland — WAREHOUSE — Cleveland Stevedore Co., foot of W. 9 St., warehouse on lower Cuyahoga River dock. $125,000.

O., Columbus—FACTORY—Scott-Viner Co., 540 W. Poplar Ave., factory for mfg. food-harvesting machinery, Kinnear Rd. on 3 acre site. $300,000.

Tex., Fort Worth — MANUFACTURING — Swift & Co., c/o North Fort Worth Stockyards, Fort Worth, cooler and mfg. bldg., addn. Approx. $100,000.

Tex., Ganado — GENERATING PLANT — South Texas Generating Co-operative, Victoria, gas turbine generating plant, near here. $790,000.

Tex., Stratford—GRAIN ELEVATOR—Riffe Bros., Stratford and Amarillo, grain elevator addn. $200,000.

Tex., Texhoma—GRAIN ELEVATOR—Riffe Bros., Stratford and Amarillo, 400,000 bu. capacity grain elevator. $225,000.

Tex., Waco—BAKERY—Weston Bakery Co. of Texas, W. Garland Weston, Waco, c/o Southern Maid Bakery Plant, doubling capacity bakery. $200,000. CD 9/23/46—ENR 10/3/46.

Va., Richmond—FACTORY—American Machine & Development Co., 315 S. 15 St., plans by Ballou & Justice, 106 E. Cary St., tobacco machinery factory, Gordon St. $130,000. O. E. Eissmann, c/o owner, ch. engr.

UNCLASSIFIED

●**Arkansas**—GAS LINE—Arkansas-Louisiana Gas, Co., Slattery Bldg., Shreveport, La., 90.8 mi. 8 in. natural gas line carrier, between vicinity Magnolia to Peoria, Columbia Co. $4,400,000.

Ark., Jonesboro — GAS DISTRIBUTION SYSTEM—Arkansas Power & Light Co., Pine Bluff, natural gas distr. sys. imprv. $226,000.

●**Calif., San Mateo**—RACE TRACK IMPRVS. —California Jockey Club, Bay Meadows Race Track, San Mateo, Bay Meadow Race Track imprvs., incl. Turf Club, barn area revision, grandstand addn., etc. $1,000,000.

Colo., Denver—BATH HOUSE, etc.—City and Denver Co., City-County Bldg., imprv. bathhouse and equip for sterilization and recirculation of water for Curtis Park Pool, $58,000; constructing swimming pool, in East Denver, $100,000.

Del., Georgetown—RACE TRACK IMPRVS. —Delmarval Raceway, Inc., E. Laurel St., harness race track imprvs. $225,000.

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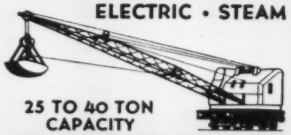

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●**Illinois**—RURAL DISTRIBUTION LINES—Norris Electric Co-operative, Newton, 669 mi. rural distr. lines, sys. imprvs., 5 mi. tie lines, two-way radio communication sys., Jasper Co. **$1,150,000.** CD 5/27/48—ENR 6/10/48.

Indiana—TEST TOWERS and STATIONS—American Telegraph & Telephone Co., 32 Avenue of Americas, New York, N. Y., 6 rein.-con. relay test towers and stations, consisting 6 story, 26x26x132 ft. high tower, Goshen, **$50,000;** 8 story 26x28 191 ft. high, Michawaka, **$75,000;** 26x28x191 ft. high Angola, **$75,000;** 7 story, 26x26x161 ft. high, Laporte, **$60,000;** 26x26x190 ft. high, south of LaPorte, **$85,000;** 26x26x161 ft. high La Grange, **$60,000.** W. Devilbiss, 153 Union Commerce Bldg., Cleveland, O., consult. engr.

Ind., Hammond—SWIMMING POOLS—Bd. P. Wks., Mayor, V. C. Anderson, chn., City Hall, plans by L. V. Sheridan, c/o owner, six 40x100 ft., rein.-con. swimming pools 1 each at Forsythe, Douglas, Irving, Maywood Parks, Hessville and Edison School grounds, **$390,000.**

●**Ia., Ames**—COLISEUM—State Bd. Educ., Des Moines, coliseum at Iowa State College. **$2,000,000.** CD 6/13/46—ENR 6/27/46.

Kan., Hutchinson—FIELD HOUSE—City, City Hall, voted **$994,000** bonds, field house. Mann & Co., Hutchinson, archts.

Louisiana—RURAL DISTRIBUTION LINES—Southwest Louisiana Electric Membership Co-operative, 437 mi. rural distr. lines, Lafayette Co. **$860,000.** Swanson-McGraw-Hooper, Balter Bldg., New Orleans, engrs. CD 4/14.

●**Minnesota**—RURAL DISTRIBUTION LINES—Northern Electric Co-operative Assn., Virginia, 393 mi. rural distr. lines, sys. imprvs., 15 mi. tie lines, 26 mi. transmission lines, headquarters facilities, St. Louis Co. **$1,185,000.** CD 10/16/46—ENR 10/31/46.

Mich., Midland—GRANDSTAND, etc.—Midland Fair Assn., Midland, grandstand, coliseum, 12 bldgs., at fairgrounds. **$350,000.**

●**Missouri-Iowa-Nebraska** — TELEPHONE CABLE—Northwest Bell Telephone Co., 19 and Douglas Sts., Omaha, Neb., laying cable from Kansas City, Mo. to Council Bluffs, Ia., and on to Omaha, Neb. **$6,500,000.** A. L. Turner, c/o owner, ch. engr.

●**Nebraska**—RURAL DISTRIBUTION LINES—Butler County Rural Public Power Dist., David City, rural distr. lines, Butler Co. **$1,040,000.** Raymond H. Reed & Co., Columbus, consult. engr.

N. D., Jamestown—DRIVE-IN THEATRE—Burr Cline, Jamestown, drive-in theatre. **$100,000.**

O., Canton—GAS LINES—East Ohio Gas Co., Terry W. Brown, dist. agt., 332 2nd St. N.W., installing gas lines to 112 downtown consumers. **$100,000.**

O., Cleveland—PARK IMPRVS.—City, A. L. Munson, dir. Public Properties, City Hall, Lakeside and 6 St., imprv. 12 playground areas in Cleveland area, imprv. existing facilities, areas to be improved, Wade-Semore; Kingsbury; Herman Ave. and W. 15 Denison; Forest Hills and E. 136 Harvard; Ambler-Holton; Alta House; Halloran; Brookside ball diamond; and Eberhard E. 73-Buckeye. **$511,000.** CD 6/1/44—ENR 6/15/44.

●**South Dakota** — RURAL DISTRIBUTION LINES—Cam-Wal Electric Co-operative, Selby, 983 mi. rural distr. lines, completion of previously approved constr., Walworth Co. **$1,515,000.** Banister Eng. Co., 1549 University Ave., St. Paul, Minn., consult. engr. CD 3/10/48.

●**Texas and Arkansas**—GAS PIPELINE—Arkansas-Louisiana Gas Co., Slattery Bldg., Shreveport, La., 72 mi. probably 8 in. natural gas pipeline carrier between vicinity Waskom, Tex. and point in Columbia Co., Ark. **$3,600,000.**

●**Texas-Ohio**—PIPELINE—Mid-Valley Pipe Line Co. (Sun Oil Co.), 1608 Walnut St., Phila., Pa., and Standard Oil of Ohio, 30x3 Broadway, Cleveland 15, O., 1,000 mi. 22 in. oil pipeline, 7 main pumping stations, 2 spur line stations, 4 oil terminals from Longview, Tex. to Lima, O. **$56,000,000.**

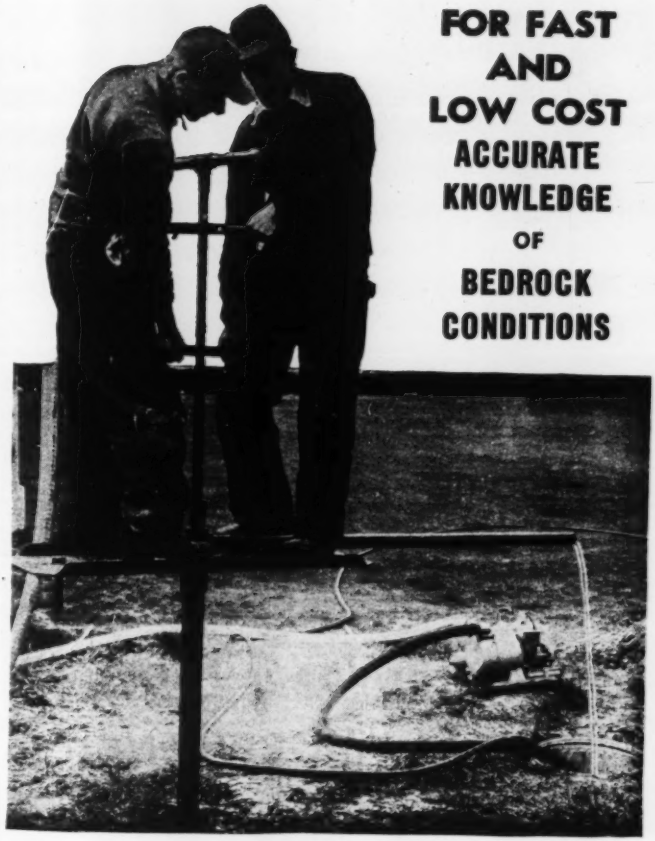
●**Texas**—RURAL DISTRIBUTION LINES—Erath County Electric Co-operative Assn., Stephenville, rural distr. lines, Erath Co. **$1,080,000.**

Tex., Gainesville—SWIMMING POOL, etc.—City, T. S. Crawford, mayor, plans by Wyatt C. Hedrick, consult. engr. and archt., 904 Fort Worth Ave., Dallas, 65x165 ft., rein.-con. outdoor swimming pool and frame bathhouse. **$100,000.**

●**Tex., Marble Falls**—HYDRO-ELECTRIC and FLOOD CONTROL DAM — Lower Colorado River Auth., c/o Max Starcke, American Statesman Bldg., Austin, hydro-electric and flood control dam on Colorado River at Granite Shoals, 11 mi. from here, **$5,000,000;** hydro-electric and flood control dam impounding approx. 110,000 acre ft. of water, on Colorado River, 6 mi. below here, **$6,000,000.**

●**Wyoming** — CRUDE OIL PIPELINE — The Texas Company, Casper, laying 122 mi. 8⅝ in. crude oil pipeline from Newcastle area to refinery at Casper, incl. gathering sys., pump stations, storage, Weston Co. **$3,250,000.**

●**Que., Montreal**—TUNNELS—Dpt. Transport & City of Montreal, 2 vehicular tunnels, at St. Remi St. and Atwater Ave., under Lachine Canal connecting city of Verdun, Ville La Salle and other municipalities and wards of city laying south of canal. Approx. **$11,000,000.** CD 9/16—ENR 2/23.



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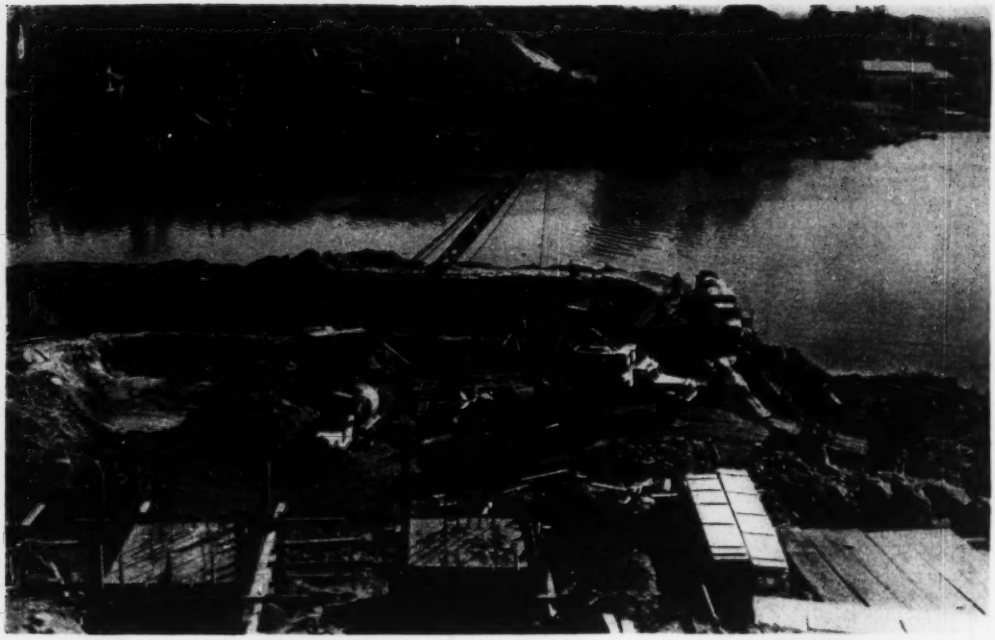

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CONSTRUCTION REPORTS

Bids—Contracts—First Section

WATER SUPPLY

BIDS ASKED

May 17

Ky., Perryville—City, City Hall, water distr. sys., storage tanks. $60,000. Plans deposit $15. Maurice Miller, McDowell Bldg., Louisville, engr.

Bids Asked

Tex., Houston—Southcrest, Inc., Union Natl. Bank Bldg., Unit 2, c.i. waterlines. $60,000.

LOW BIDDERS

Calif., Sebastopol—Bodega Bay Public Utility Dist., 119 Santa Rosa Ave., Apr. 26, water sys., incl. reservoir, supply lines, intakes, etc., Bodega Bay, near here, from Arthur B. Sire, 1357 Cleveland Ave., Santa Rose, **$37,999.**

Ia., Storm Lake—City, City Hall, Apr. 18, 500,000 gal. water tower, from Pittsburgh-Des Moines Steel Co., 270 Broadway, New York, Zone 7, N. Y., **$74,260.** Est. $80,000. CD 3/24—ENR 3/31.

Tex., Beaumont—City, City Hall, Apr. 26, main pump. station imprvs., expans., from Pittsburgh-Des Moines Steel Co., Praetorian Bldg., Dallas, **$132,500.** Est. $165,000. Freese & Nichols, 407 Dancliger Bldg., Fort Worth, engrs.

Tex., Saginaw—City, John Kennedy, mayor, Apr. 25, Unit 1, water distr. sys., from Cole Williams Co. & W. G. Cullum & Co., Route 7, Box 429-A, Dallas, **$29,007.** Est. $45,000. CD 4/13.

Va., Norfolk—City, City Hall, two 6 m.g. **(a)** steel or **(b)** concrete reservoirs and related work at Moore's Bridge Pumping Station, from Vanguard Constr. Corp., Ingleside, Norfolk, **(a) $309,410;** from Preload Corp., 211 E. 37 St., New York, Zone 16, N. Y. **(b) $379,500.**

CONTRACTS AWARDED

Ia., Vinton—City, 2,100 ft. 8 in. watermain, 2 filters, accessories, filter plant, well pump imprv., to General Filter Co., Ames. Approx. **$40,000.** L. P. Whitney, Cedar Rapids, engr.

Neb., Benkelman—City, water sys. imprvs., to Walters Sand Co., Manhattan, Kan., **$49,041.** Bids 4/18. Douglas McKnight, Lincoln, engr.

Okla., Tulsa—City, conduit connections and chlorination equip. at Spavinaw Dam, to Roberts & Sisson, 1429 S. Braden St., **$132,000.** Est. $175,000. Bids 4/15, awarded 4/21. CD 3/30—ENR 4/7.

Va., Norfolk—City, City Hall, Elizabeth River crossing portions of raw water transmission main, Contr. 3-A, to Tidewater Constr. Corp., 538 Front St., **$109,377;** Contr. 3-B, from Carpenter Constr. Co., Bank of Commerce Bldg., **$268,914.**

N. B., Saint John—Municipality, water line extens., Rifle Range development, own forces, **$60,000.** W. R. Godfrey, Saint John, Dir. of Wks. Bids 4/11. CD 4/6.

SEWERS, WASTE DISPOSAL

BIDS ASKED

May 16

N. Y., Bethel—Bethel Town Bd., at office Mrs. Fred Cooper, clk., Kauneonga Lake, Contr. 1, West Shore Sewer Dist. pipeline, manholes, pump. plant substructure; Contr. 2, 17-B Sewer Dist., pipelines, manholes and pump. station substructures; Contr. 3, altering Kauneonga Lake Treatment plant, incl. primary and secondary settling tank, trickling filter, appurtenances. Plans deposit $10 each Contr. 1 and 2, $40 for Contr. 3. Nial Sherwood, 19 Chestnut St., Liberty, consult. engr. CD 4/28.

LOW BIDDERS

Fla., Tampa—City Dpt. P. Wks., City Hall, Apr. 27, Storm Sewer Proj. S-2-49, Highland Ave., from Bringon Constr. Co., 51 St. and E. Broadway Ave., **$173,364.** CD 4/18—ENR 4/21.

Tex., Houston—City, c/o M. H. Westerman, secy., City Hall, 900 Brazos St., Apr. 27, Southside Sanitary Sewer Trunk Line, 54 in., from Russ Mitchell, Inc., 5304 Old Spanish Trail Rd., **$37,899,** materials by owners, **$55,000.** W. E. White, c/o owner, engr.

CONTRACTS AWARDED

Neb., Grand Island—City, sewage plant imprvs., to Chambers Constr. Co., 621 Trust Bldg., Lincoln, **$288,258.** Bids 4/20. CD 3/31—ENR 4/7.

Ore., Tillamook—City, City Hall, sewage treatment plant, to Henshaw Bros., 4006 N. E. Davis St., Portland, **$66,750.** CD 6/30—ENR 7/8, under LB.

N. B., Saint John—Municipality, sewerage lines, Rifle Range development, own forces, **$79,000.** W. R. Godfrey, Saint John, dir. wks.

Ont., Mimico (Postal Dist. Toronto)—Municipality, incinerator addn., Algoma Ave., to City Service Incinerator Co., St. Paul, Minn., U. S. A., **$60,000.** G. G. Reid, 264 Avenue Rd., Toronto, engr. CD 11/5/43—ENR 11/11/43.

BRIDGES

BIDS ASKED

May 24

Minn., Thief River Falls—Pennington Co., A. M. Senstad, aud., Bridge 6613, continuous beam spans, grading 306 ft. approaches, over Red Lake River, S. P. 57-502-02 (SAR 2), F. A. S. 27 (2). $100,000. Plans deposit $3.10.

May 25

Minn., St. Cloud—Stearns Co., F. Ramler, aud., 169 ft. continuous beam span Bridge 65673 over Sauk River, ¾ mi. north of Waite Park, S. P. 73-520-02 (SAR 4), Minn. Proj. S 369 (1), Stearns Co. $75,000. Plans deposit $1.50.

LOW BIDDERS

California—State Div. Hys., P. Wks., Bldg., Sacramento, repairing 2 timber truss spans, substructures of existing bridge across Big River about 12.4 mi. south of Ft. Bragg, Mendocino Co., from Metzgar Co., Box 266, San Pablo, **$71,900.** CD 4/4—ENR 4/7.

CONTRACTS AWARDED

Kansas—State Hy. Dpt., Chanute, 160 ft. continuous steel truss Bridge 39-67-7.2, Sta. 104-plus-70, S. P. 39-67 F 567 (2), Pt. I, Neosho Co., to List & Weatherly Constr. Co., 231 W. 47 St., Kansas City, Mo., **$295,519.** Bids 4/15. CD 4/7.

Quebec—Province of Quebec, Quebec City, 3 span, 36x200 rein.-con. bridge over Louvicourt River, Val d'Or to Simard & Bros. Ltd., Amos, **$175,000***3** spans, 36x200 ft. rein.-con. bridge over Riviere Petit Nation, St. Angelique, Papineau Co., to George Gagne Ltd., 1200 Sherbrooke St. W., Montreal, **$250,000***26x100** ft. rein.-con. bridge over Bourlamaque River, Abitibi, to La Societe d'Enterprises Generale Ltd., Amos, **$150,000.** Grand total $575,000

STREETS AND ROADS

BIDS ASKED

May 17

Minn., Fairmont—City, S. Stewart, clk., City Hall, st. reconst. imprvs., incl. 2,398 cu. yd. excav., 2,504 cu. yd. gray., 12,296 lin. ft. straight curb and gutter, 1,886 lin. ft. circular curb-gutter, 1,348 lin. ft. variable height curb-gutter, 515 lin. ft. 10- to 15- in. concrete storm sewer, 2,210 lin. ft. 10 and 12 in. corrugated metal pipe storm sewer, 46 storm water inlets, 10 storm drain manholes, etc., $50,000. F. O. Jones, Fairmont, engr. CD 4/10/44—ENR 4/20/44.

May 19

†Tex., Fort Bliss (El Paso P. O.)—U. S. Eng., Dpt. of Army, Office Quartermaster, Purchasing and Contracting Div., El Paso, road construction and asph. paving in prefabricated housing area, Serial No. Eng-41-014-49-75. $50,000.

May 24

Minn., Buffalo—Wright Co., R. H. Jewett, aud., Buffalo, grading 2.3 mi. timber box culvert, between 2.3 south of Cokato and south limits of Cokato, S. P. 86-501-01 (SAR 1), Minn., Proj. S 399 (2), grading 2.1 mi. between 2.1 mi. south of Trunk Hy. 55 and TH 55, S. P. 86-502-04 (SAR-1), Minn. Proj. S 322 (5); grading 3.6 mi. between 4.6 mi. south and 1 mi. south of Annandale, S. P. 86-504-01 (SAR 2), Minn. Proj. S 346 (3). $50,000. CD 2/3/44—ENR 2/24/44.

†North Carolina—Pub. Roads Admin., 1440 Columbia Pike, Arlington, Va., Proj. 29F5, Blue Ridge Parkway, rein.-con. tunnel lining, etc., Buncombe Co. Plans deposit $10.

May 26

†N. M., Albuquerque—U. S. Eng., P. O. Box 1538, roads and steam distr. for training bldgs., Sandia Base, EOP-921 D, Serial No. Eng-29-005-49-88. CD 4/26—ENR 4/28.

Bids Asked

Tex., Houston—Southcrest, Inc., Union Natl. Bank Bldg. Sect. 2, street construction and asph. paving. $90,000. CD 4/28.

LOW BIDDERS

Kansas—State Hy. Dpt., Burlington, rejected bids Apr. 22, base and double asph. surf. tr. 9,577 mi. S. P. 39-37 F 322 (9), Pt. II, Greenwood Co., L. B. **$269,088;** sheet asph. surf. and base and light type surf. (detour), 5.722 mi. S. P. 75-16 F 402 (16), Pt. I, Coffey Co., L. B. **$80,497,** and **$194,679** respectively. CD 4/7—ENR 4/14.

Nevada—State Hy. Dpt., Carson City, Apr. 28, constructing 11.288 mi. portion State Hy. sys. from Strawberry (Newark Valley) to 12 mi. north on Route FAS 578, Contr. Sect. WP-30, State Hy. Contr. 729, White Pine Co., to Wesibrook & Pope H St. Rd., Sacramento, Calif., **$104,726;** 51.532 mi. portion of State Hy. Sys. from Round Mountain Junction to junction with U. S. 50 near Austin and 2.71 mi. from Round Mountain Junction to Round Mountain, Routes FAS 624 and 672, Control Sects. NY-14, NY-21, and LA-97, State Hy. Contr. 728, Nye and Lander Counties, to Dodge Constr. Inc., N. Main St., Fallon, **$236,877.** Bids 4/28, awarded 4/29. CD 4/20.

CONTRACTS AWARDED

Kansas—State Hy. Dpt., Wellington, base, double asph. surf. tr. 9.238 mi. S. P. 196-8 S 135 (4), Butler Co., to Reno Constr. Co.,

PROTECT
Metal, Masonry Surfaces with Arco's "BIG 3"!

1 Furst-McNess Co., Freeport, Ill.
Applier: Industrial Maintenance Co., Chicago, Illinois

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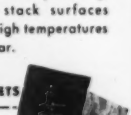

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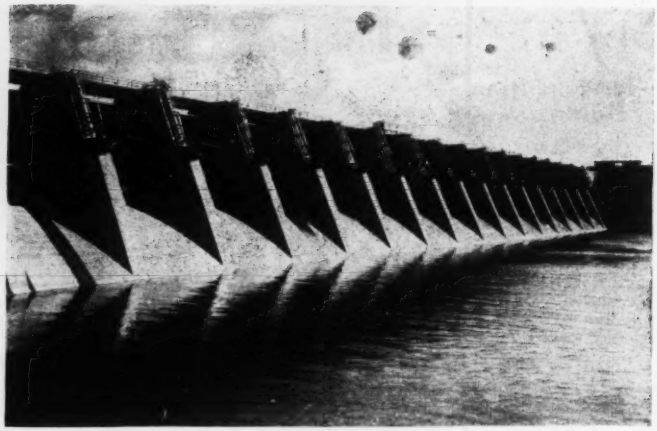

Spillway of the TVA's Watts Bar Dam near Chattanooga, Tenn.

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The action of the Fir-Tex Liner is like that of a vacuum cleaner. It absorbs all excess air and water adjacent to surface. The removal of bubbles permits the cement to flow into those spaces so that this surface sets solidly into a smooth attractively textured mass of extreme density and resistance to moisture. This structural change in the concrete extends to a depth of about 1¼ inches from the face. Not only has the structure been given architectural beauty, but its weather resistance has been so greatly increased that eminent engineers have referred to its surface as "case hardened."

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Overland Park, **$221,343*****base, double asph. surf. tr. and light type surf. (detour), 3.303 mi. S. P. 15-18 F 326 (15), Cowley Co., and base, double asph. surf. tr., light type surf. (detour) 5.309 mi. S. P. 15-96 F326 (14), Sumner Co., to San Ore Constr. Co., McPherson, **$83,074** and **$132,169** respectively*****grading 7.615 mi. S. P. 42-96 F 344 (3), Sumner Co., to Watson-Coffey, National Bank of Topeka, **$125,962.** Grand total $562,548. CD 4/7—ENR 4/14.

Kansas—State Hy. Dpt., Burlington, base and dense graded surf. course 5.683 mi. S. P. 99-25 F 405 (19), Elk Co., to Freeto Constr. Co., Inc., Pittsburgh, **$175,910.** Bids 4/22. CD 4/7—ENR 4/14.

Kansas—State Hy. Dpt., Hiawatha, bit. reconstruction and single asph. surf. 12.088 mi. from Horton north U. S. 73 to Hiawatha. S. P. 73-7 K 1260 (1), Brown Co., to A. F. Reis, National Bank of Topeka Bldg., Topeka, **$56,449.** Bids 4/25. CD 4/7—ENR 4/14.

Okla., Tulsa—City, wid'n. Main St. from Haskell to Pine St., to Standard Paving Co., 2119 E. 11 St., **$94,925.** Est. $95,082. Awarded 4/21. W. R. Wooten, city engr.

Tex., Refugio—Refugio Co., Courthouse, partial reconstruction asph. paved road between Refugio and Hy. 35, force account **$75,000.**

Wash., Seattle — City, County-City Bldg., Zone 4, paving 47 Ave. S. and other streets, to Northwest Constr. Co., 3950 6 Ave. N. W., **$808,456.** CD 4/27—ENR 5/5, under LB.

West Virginia—State Road Comn., Charleston, traffic bound base course Type B, 2.725 mi. Sec. Rt. 24/1 to Sec. Rte. 6 Road (Sec. Rte. 6/3) FASP S-577 (1), Tyler Co., to Hillard Marcum, Verdunsville, **$62,989;** traffic bound base course 6.912 mi. Heaters-Gem Rd., FASP S-554 (1), Braxton Co., to Stickley Bros., Inc., Keyser, **$149,493.** Bids 4/26. CD 4/18—ENR 4/21.

N. S., Dartmouth—Municipality, curb, gutter, sidewalks, own forces. **$105,000.** J. W. Lahey, Dartmouth, engr.

Ont., Kingston—City, C. C. Wyatt, clk., Kingston, asph. paving streets, to Warren Bituminous Paving Co. Ltd., 618 Montreal St., Kingston, and Harvey Constr. Co. Ltd., R. R. 1, Kingston, Approx. **$125,000.** Bids 4/18. CD 4/13.

Que., Montreal — Municipality, pavements and sidewalks, McKenzie St., Plamondon, Trans Island and Benny Aves., to Chas. Durranceau Ltd., 2545 Jacques Hertel St., **$85,900;** Gicard and Theodore Sts., to H. O. O'Connell Ltd., Canada Cement Bldg., **$53,350.**

EARTHWORK, WATERWAYS

BIDS ASKED

May 17

N. Y., Long Beach—Maurice J. Fleischman, city clk., Community Hall, Long Beach, sand fill, rip-rap embankment and culvert replacing each existing bridge on Pine St. at Sarazen Ouimet and Hagen Canals. Plans deposit $5.

LOW BIDDERS

●†Kentucky—U. S. Eng., 303 U. S. Court House, Nashville, Tenn., clearing segments, Group 3, Wolf Creek Reservoir, Cumberland River, Serial No. Eng.-40-058-49-71, from Schutt Constr. Co. & Assoc., Genoa, Wis., Item 1, **$666,666** est. $450,000, Item 4 **$589,000** est. $431,700; from Volunteer Clearing Co., Nashville, Tenn., Item 2 **$354,000** est. $499,400, Item 3 **$741,000** est. $401,200 and Item 5 **$265,000** est. $188,300.

Louisiana—State Div. Admin., Capitol Annex, Baton Rougse, Apr. 18, enlarging earth dam and rein.-con. spillway at site of present Lake Bistineau Dam, Bossier and Bienville Parishes, Part 1, from Ben & Hawkins, Lake Village, Ark., **$51,864;** Part 2, from M. E. Pollard, Bossier City, **$203,386.** CD 3/25—ENR 3/31, under **La.**, Baton Rouge.

†Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, Apr. 28, clearing reservoir, Dam B, Neches River Basin, Jasper and Wyler Counties, Inv.- No. Eng-41-243-49-254, from Sturman-Davis Constr. Co., Sterling Bldg., Houston, **$274,000.** Est. $100,000.

Tex., Raymondville — Willacy County-Red Fish Bay Navigation Dist., Raymondville, Apr. 27, barge-traffic water port, at Port Mansfield from Wedegartner Constr. Co., P. O. Drawer 711, Brownsville, **$96,552.** CD 4/13.

CONTRACTS AWARDED

†Oklahoma—Bureau Reclamation, Dpt. Interior, Altus, earthwork and structures, Spec. 2508, to Stamey Constr. Co., Hutchinson, Kan., **$98,658.** Bids 1/21. CD 12/22—ENR 1/6.

†Oregon—U. S. Eng., 628 Pittock Block, Portland, Zone 5, ring levee and salvage, reinstall pipeline at Denver Ave. break in Peninsula Drainage Dist. 2, Eng-35-026-49-489, Mutonomah Co., to John Havik, Scappoose, **$37,220.** Est. $42,202. Bids 4/27.

†Washington—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, flood control imprv., on Yakima River, Serial No. Eng-45-108-49-142, to Carl M. Halvorson, Inc., 3818 N. E. Sandy St., Portland, Ore., **$135,558.** Est. $159,984. Bids 4/27.

†Washington—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, channel imprvs., Yakima River, Serial No. Eng-45-108-49-143, to J. A.

(Continued on page 144)

BIG BUY

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BIG "Army Workhorse" Engine

the same famous GMC "270" that performed so dependably and economically in nearly 600,000 military GMCs . . . with such quality features as Full-Pressure Lubrication, Tocco-Hardened Crankshafts, Airplane-type Main Bearings.

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with heavy duty frame of 10.1 section modulus . . . big husky axles, clutch, transmission, brakes and springs. Built to handle gross vehicle weights up to 21,500 pounds and truck and trailer weights up to 37,000 pounds.

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FOR 6, 12, 20-TON LOADS
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Handles of old-style hooks are frequently damaged. "I"-Beam section design of Foss Hook makes the welded-on handle superfluous. The hook can be grasped safely and easily by the hooker from any point. Note the extra-wide throat that makes loading easy.

HERE at last is a sturdy, heavy-duty, alloy steel-sling hook that will save you time and money, decrease accidents in your plant and speed up your operations. "I"-Beam type construction reduces the weight and because this design permits gripping at any point, it is the safest type of hook for your workmen to handle.

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USS UNITED STATES STEEL

(Continued from page 142)

Terteling & Son, 4011 Fairview Ave., Boise, Idaho, **$229,668.** Est. $236,944. Bids 4/28. CD 4/19—ENR 4/21.

AIRPORTS AND AIRBASES

BIDS ASKED

May 10

†**Ala., Birmingham** — FACILITIES — U. S. Eng., P. O. Box 1169, Mobile, Zone 7, constr., repairs Air National Guard Facilities at Birmingham Municipal Airport, Serial No. Eng-01-076-49-143. Extended date. CD 4/20—ENR 4/28.

LOW BIDDERS

Tex., San Antonio—AIRPORT—City, Alfred Callaghan, mayor, Apr. 28, Alamo Airport improvs., from H. B. Zachry Co., P. O. Box 2570, **$62,873.** Est. $50,000. CD 4/9—ENR 4/21.

LATIN AMERICA

Mexico, Mexico City—Ford Motors Co., S. A., Clz. Guadalaupe and Henry Ford, Mexico, D. F., automotive vehicle assembly plant extens., to Con-Tec, S. A., H. E. Adam, Papaloapan, 43, Mexico, D. F. Appox. **$2,000,000.** Awarded 4/28. CD 3/4—ENR 3/18.

PUBLIC BUILDINGS

BIDS ASKED

After May 15

N. D., Grand Forks—University of North Dakota and Student Union Corp., Grand Forks, student union bldg. $500,000. Grosz & Anderson, Grand Forks, archts. CD 10/22—ENR 11/11.

N. D., Minot—State Bd. Higher Educ., Bismarck, physical education bldg. at State Teachers College. $425,000. S. M. Houkom, Fargo, archt. CD 1/20—ENR 3/17.

About October 1

●**Va., Charlottesville**—University of Virginia, Charlottesville, academic bldg., housing entire college. **$1,000,000.**

Bids Asked

Conn., Naugatuck — Town, Bd. Selectmen, Town Hall, brick, steel school, 7 classrooms, cafeteria auditorium and gymnasium, kindergarten and playroom. $300,000. Henry T. Moeckel, 35 Hillcrest Ave., archt. CD 2/25—ENR 3/17.

●**Ill., Blue Island**—Community High School Dist. 218, Blue Island, 2 story, brick, concrete, stone, steel high school. Approx. $1,000,000. Charles Nicol & Assoc., 23 E. Jackson Blvd., Chicago, archts.

LOW BIDDERS

●**N. Y., East Meadow**—Bd. Supervs. Nassau Co., Old County Courthouse, Mineola, rejected bids Apr. 5. Meadowbrook Hospital addn. general contract, L.B. **$6,889,000*****heating and ventilating, L.B. **$837,000*****plumbing, L.B. **$784,120*****electrical work L.B. **$572,700.** CD 4/8—ENR 4/14, under LB.

Tex., Huntsville—Walker Co., W. Patton, judge, Courthouse, Apr. 28, 40-bed county hospital, from Temple Assoc., Lufkin, approx. **$286,000.** Est. $375,000. CD 4/5—ENR 4/7.

CONTRACTS AWARDED

Fla., Gainesville—State Bd. Control, c/o Guy C. Fulton, archt., 204 Peabody Hall. Unit C girls' dormitory at University of Florida, to C. A. Fielland, 107 N. Rome Ave., Tampa, **$505,925.** Bids 4/22. CD 4/29—ENR 5/5, under LB.

N. Y., Hempstead—Bd. Educ., Union Free School Dist. 1, Hempstead, Abbey Lane and Gardiners Ave. Schools, to Joseph Bisceglia & Sons, Inc., 227½ Harrison Ave., Harrison, **$768,721.** Bids 3/24. CD 3/15—ENR 3/17.

Ore., Albany—Albany School Dist., Albany, 3 schools, to Ken Ward Constr. Co., 5120 S. E. Milwaukie St., Portland, **$571,625.** Awarded 4/29. CD 5/2—ENR 5/5, under LB.

●**Pa., Chambersburg**—Chambersburg Hospital, c/o H. W. Hunt, Chambersburg, brick, steel hospital, to McClosky & Co., 1620 Thompson St., Phila., **$1,026,000.** Bids 4/20, awarded 4/28. CD 4/25—ENR 4/28, under LB.

●†**Tex., Velasco**—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., magnesium production plant, to Austin Co., M & M. Bldg., Houston, **$1,143,000.**

N. S., Halifax—Dominion Govt., National Research Council, Ottawa, Ont., research laboratory, to McDonald Constr. Co. Ltd., 76 Sullivan St., **$562,001.** L. R. Fairn, 41 Argyle St., archt.

COMMERCIAL BUILDINGS

BIDS ASKED

May 24

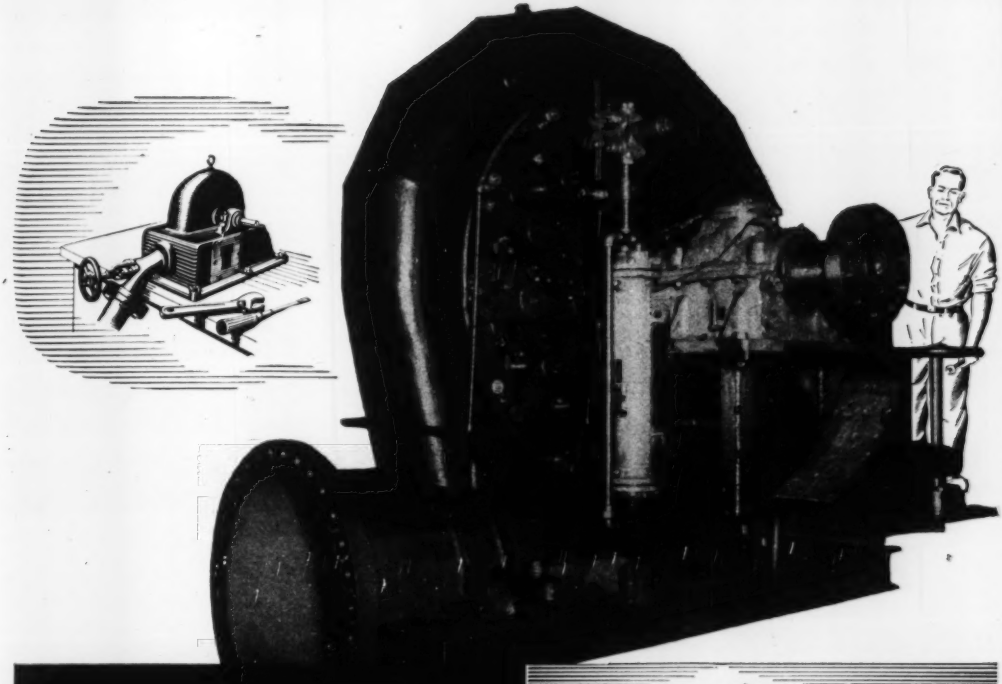
O., Columbus—Corpus Christi Church, Linwood and Stewart Sts., church and hall. $550,000. Plans deposit $15. Ramey & Croce, 6 W. Frambes St., archts. CD 4/15—ENR 4/21, under LB.

O., Columbus—W. S. Konold, supt. Doctors Hospital, 1807 Dennison Ave., hospital wing. $413,000. Bid date changed. Dan A. Carmichael, 5 E. Lang St., archt. CD 4/28—ENR 5/5.

SOON LETS CONTRACT

Tex., Georgetown—Southwestern University, Georgetown, soon lets contract masonry Lois Craddock Perkins Hall. Approx. $275,000. Cameron D. Fair-

(Continued on page 147)



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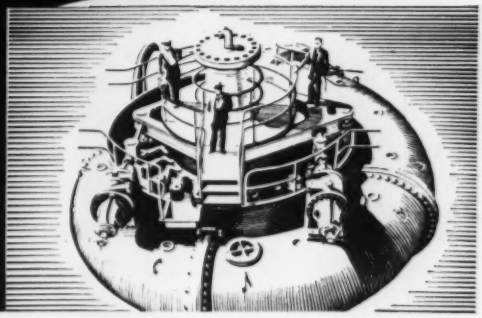

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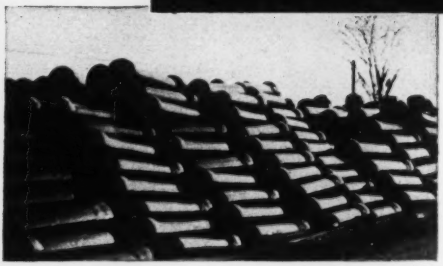

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(C-449-)

(Continued from page 144)

child, 3044 San Felipe Rd., Houston, archt. CD 5/27/46—ENR 6/6/46.

Tex., Pasadena—Southwestern Bell Telephone Co., Akard, Jackson and Wood Sts., Dallas, stone, brick, steel telephone bldg., concrete frame and fdn., **$250,000.**

CONTRACTS AWARDED

Ill., Chicago—Harold A. Stahl & R. E. Ahlstrand, Phillips Ave. and 72 St., 3 story apartment, to R. E. Ahlstrand, 6258 N. Talman St., **$260,000.** Harold A. Stahl, 111 W. Monroe St., archt.

●**N. Y., Hyde Park**—Springwood Village, c/o Trapani Assoc., archts., 64 Burke Ave., New York, N. Y., Springwood Gardens Apartments, 53 one-family houses. Owner builds. **$1,000,000.**

●**N. C., Asheville**—Z. B. Robinson, 105 N. Griffing Blvd., pres. Robinson Contractors, Richard L. Coleman, 12 Church St., F. B. Short, Flat Iron Bldg., 270 unit rental housing, near Grove Park Inn, 27 acre tract in northern sect. of city. Owner builds. Approx. **$2,187,000.**

Tex., Abilene—McMurry College, Abilene, student life center, to Rose Constr. Co., P. O. Box 814, **$514,500.** Bids 4/28. CD 3/18—ENR 3/24.

Tex., Dallas—Crown Constr. Co., S. Westmoreland St., 70 addnl. residences, in Roaland Hills between Westmoreland and Keats Dr., near here, **$450,000;** 70 addnl. residences, in Roaland Hills Addn., near here. **$475,000.** Owner builds. CD 4/28.

●**Tex., Houston**—W. W. McMillan, 8001 Harrisburg Rd., 200 dwellings, in area of Griggs and Mykawa Rds., own forces. Approx. **$1,100,000.** CD 4/28.

Tex., Houston—Lawrence O'Donnell, 2409 Inwood Dr., 100 dwellings, 2nd sec. of Glen Manor. Owner builds. **$475,000.** CD 4/28.

Tex., Houston—Plantation Development Co., c/o L. L. Ray, Holmes and Chocolate Bayou Rds., 75 dwellings. Owner builds. **$425,000.** CD 4/28.

Tex., Houston—M. F. Satterwhite, 4151 Lanark St., 150 dwellings, in area near Griggs and Mykawa Rds., own forces. **$725,000.** CD 4/28.

Tex., San Antonio—Alamo Lumber Co., Transit Tower, 60 addnl. dwellings, Jefferson Terrace, Purchase and Hire. Approx. **$425,000.** CD 4/28.

Tex., San Antonio—Texas National Hotel Assn., c/o W. L. Moody, II and W. L. Moody, Jr., Anico Bldg., Galveston, 4 story addn. to Menger Hotel, incl. auto sterage and service garage, to Hill & Combs, 321 Melrose St. Approx. **$810,000.** Bids 4/14. CD 4/26—ENR 4/28, under LB.

INDUSTRIAL BUILDINGS

BIDS ASKED

May 17

Minn., Glencoe — GARAGE, etc. — McLeod Electric Co-operative, A. Fischer, mgr., 1 story, brick garage, warehouse, office. **$100,000.** Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, archts. CD 11/18—ENR 12/16.

N. C., Charlotte—HEADQUARTERS—Union Electric Membership Corp., Monroe, headquarters bldg. Plans deposit $25. M. R. Marsh, Builders Bldg., archt.

SOON LETS CONTRACT

Ill., Chicago — WAREHOUSE, etc. — **Fairbanks Morse & Co.,** 600 S. Michigan St., soon lets contract 1 story, steel, concrete warehouse and office. **$330,000.** A. Epstein & Sons, Inc., 2011 W. Pershing Rd., archt. CD 2/11—ENR 3/17.

S. C., Columbia — WAREHOUSE — **Lafaye, Lafaye & Fair** and Walter F. Petty **Assoc.,** archts., 1226 Sumter St., Columbia, soon lets contract warehouse for Julia Krell, c/o archt.

Que., Farnham—PLANT—Wood & Langston, archts., 4444 W. Sherbrooke St., Montreal, soon lets contract 5 story, 60x62 ft., rein.-con. steel, brick plant, for Barry & Staines, Ltd., 660 W. Ste. Catherine St., Montreal. **$150,000.**

LOW BIDDERS

Tex., Dallas—WAREHOUSE—Lone Star Gas Co., 1915 Wood St., Apr. 26, warehouse (small office space), from O'Rourke Constr. Co., 1001 Commerce St., **$244,486.** CD 4/19—ENR 4/28.

CONTRACTS AWARDED

Calif., San Francisco—STORAGE—San Francisco Brewing Corp., 490 10 St., 1 story storage bldg., to Cahill Constr. Co., 206 Sansome St., Approx. **$400,000.** Ray N. Moore, 617 Bryant St., engr.

●**Ill., Cicero**—PLANT—Cities Service Oil Co., 70 Pine St., New York, 5, N. Y., plant unit, 23 m.g. capacity, to Sommer S. Sollitt & Co., 307 N. Michigan St., Chicago, Approx. **$4,000,000.**

Tex., Houston — PLANT — Dalton Burns & Assoc., 2911 Tangley St., steel drum reconditioning plant, own forces. Approx. **$110,000.** CD 4/20—ENR 4/28.

Tex., McGregor—FACTORY—Norwood Mfg. Co., McGregor, addnl. work for furniture mfg. factory, remodeling, force account. **$175,000.** CD 9/27/48—ENR 10/28/48.

Tex., Port Arthur—PLANT—Jones-Laughlin Steel Co., Port Arthur, addnl. modernizing and expanding steel barrel plant, own forces. **$110,000.** CD 3/24—ENR 4/7.

Va., Richmond—PLANT—Liggett & Meyers Tobacco Co., 101 S. 6 St., general alterations,

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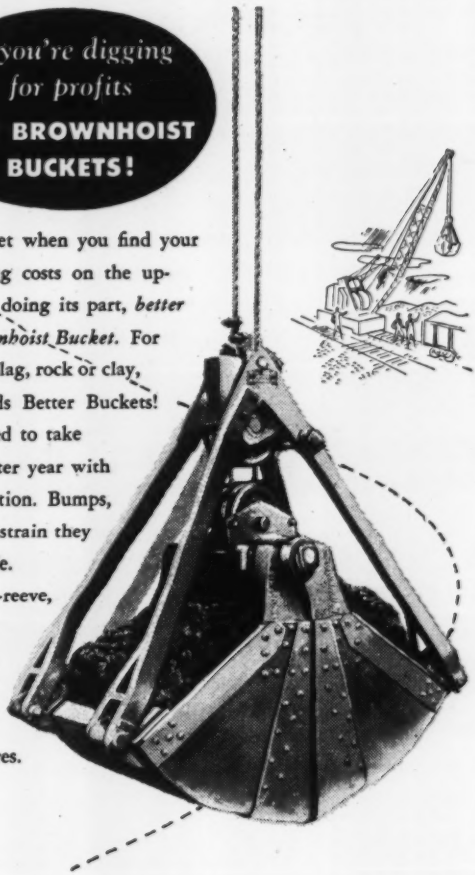

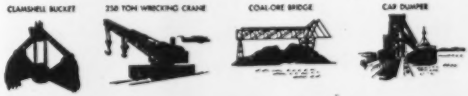

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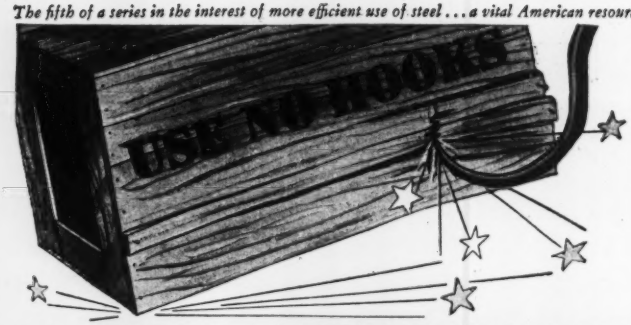

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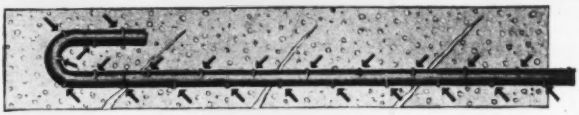

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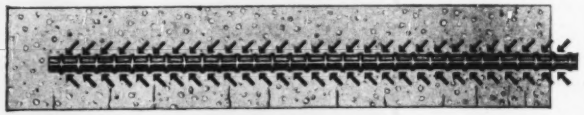

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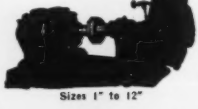

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repairs to plant, to Doyle & Russell, Inc., Central Natl. Bank Bldg., **$400,000.** CD 6/30/47—ENR 7/24/47.

Ont., Georgetown—FACTORY—Kippen Ker Ltd., Georgetown, 1 story, 50x95 ft., rein.-con. factory, owner builds. Approx. **$70,000.**

Ont., Toronto—WAREHOUSE—T. Wilkins, 34 Market St., 2 story, 100x200 ft., concrete, brick warehouse, to J. Bodie Constr. Co. Ltd., 456 Pape St. Approx. **$75,000.**

Que., Montreal—PLANT—Canadian Tube & Steel Products Ltd., 5765 Hamilton St., plant addn., to Ross & Anglin Ltd., 4400 Ste. Catherine St. W., Approx. **$80,000.** Bids 4/18. CD 4/14—ENR 4/21.

Sask., Camray — MINE DEVELOPMENT — Murmac Lake Althabaska Mines Ltd., 100 Adelaide St., Toronto, Ont., Theano Point uranium field development, to E. McCarthy, c/o owner, Approx. **$100,000.**

Sask., Goldfields—MINE DEVELOPMENT—Eldorado Mining & Refining Co. Ltd., 80 King St. W., Toronto, Ont., developing uranium claims in northern Saskatchewan, near Beaver Lodge Lake. Owner builds. **$150,000.** CD 4/8—ENR 4/28.

UNCLASSIFIED

BIDS ASKED

May 17

Ia., Keokuk—CEMETERY IMPRVS.—U. S. Eng., 1709 Jackson St., Omaha, Neb., imprv. Keokuk National Cemetery, Serial No. Eng. 25-066-49-1. CD 4/26—ENR 5/5.

June 21

●**Tex., Houston**—TUNNEL—Harris Co., c/o H. L. Washburn, aud., Courthouse, and State Hy. Dpt., Austin, Sect. 1, tunnel under Houston Ship Channel near Morgans Point, between Baytown and LaPorte. **$8,500,000.** Parsons, Brinckerhoff & Macdonald, 51 Broadway, New York, N. Y., engrs. Jim Douglas, c/o State Hy. Dpt., Austin, engr. ●19 3/29—ENR 3/31.

CONTRACTS AWARDED

Ind., Madison—DRIVE-IN THEATRE—Sky Line Drive-In Theatre Co., New Albany, drive-in theatre, State Rd. 10, ½ mi. north of junction with State Rd. 256, Kent Rd., separate contracts. Approx. **$100,000.** CD 4/11—ENR 4/28.

Ind., Mechanicsburg—DRIVE-IN THEATRE—Frankfort-Lebanon Drive-in Theatre, Inc., Harry W. Ziegler, secy., Lebanon, drive-in theatre, Rt. 39 north of here, separate contracts. Approx. **$50,000.**

Ind., Washington—DRIVE-IN THEATRE—Switow's Washington Enterprises, c/o M. Switow & Sons Enterprises, Inc., 651 S. 11 St., Louisville, Ky., and A. J. Kalberer, city mgr., drive-in theatre, near city limits, separate contracts. **$80,000.**

Ind., Winamac — DRIVE-IN THEATRE — George Banta, Richard Hand & Tony Vitello, Logansport, drive-in theatre, 20 acre tract north of Winamac and 3 mi. south of Bass Lake, separate contracts. Approx. **$60,000.**

Ky., Glasgow—DRIVE-IN THEATRE—Star Drive-In Theatre, D. D. Aspley, mgr., Glasgow, drive-in theatre, Jackson Hy. 3 mi. north of here, separate contracts. Approx. **$60,000.**

Montana and North Dakota—RURAL DISTRIBUTION LINES—Sheridan Co. Electric Co-operative, Westby, labor only 291.8 mi. rural distr. lines, Sheridan and Roosevelt Counties, Mont., and Divide Co., N. D., to Rue Constr. Co., Fargo, N. D., **$121,788.** Bids 4/15. CD 3/31—ENR 4/7.

North Dakota and Minnesota — SUBSTATIONS—Minnkota Power Co-operative, Grand Forks, 17 substations, eastern North Dakota and northwestern Minnesota, to Valley Eng. & Constr. Co., Grand Forks, **$92,319.** Bids 4/18. CD 3/17—ENR 3/24.

O., Newcomerstown—SWIMMING POOL, etc. —City, 40x82 ft. swimming pool, 30x66 ft. bathhouse, to Salrin Constr. Co., Coshocton, **$65,000.** Alden E. Stilson & Assoc., 209 S. High St., Columbus, engrs. CD 11/16/45—ENR 12/13/45

Texas—OIL PIPELINE—Sun Pipe Line Co., San Jacinto Bldg., Beaumont, overhead crude oil pipelines across Taylors Bayou, and under Bay east of LaBelle Rd., Port Arthur area, Jefferson Co., own forces. Approx. **$75,000.**

Texas—GAS MAINS—United Gas Pipe Line Co., 1525 Fairfield St., Shreveport, La., natural gas mains, Austin area, force account. **$175,000.** CD 12/1/48—ENR 12/30/48.

Tex., Dallas—TRACKS—Texas & New Orleans R. R. Co., H. J. McKenzie, ch. engr., Southern Pacific Bldg., Houston, Zone 1, standard gage railway spur tracks, Lake June Rd. area, own forces. Approx. **$50,000.**

Tex., San Antonio—DISTRIBUTION LINES—City Public Service Bd., 201 N. St. Mary's St., addnl. electric distr. lines in outlying districts, force account. **$225,000.** CD 11/11—ENR 11/25.

Tex., Tyler—YOUTH CAMP—City, Bill Taylor, mgr., youth camp, playgrounds, courts, grading, levelling, etc., utilities, to Campbell & Kay, Chandler Hy., **$118,000.** Gregory & Cates, 207 W. Erwin St., archts.

Ont., Lingman Lake (Postal Dist. Red Lake)—POWER LINES—Lake Lingman Gold Mines Ltd., 707 McArthur Bldg., Winnepeg, Man., 80 mi. power line to God's Lake mine, own forces. Approx. **$100,000.** M. C. Gmerchanski, ch. engr.

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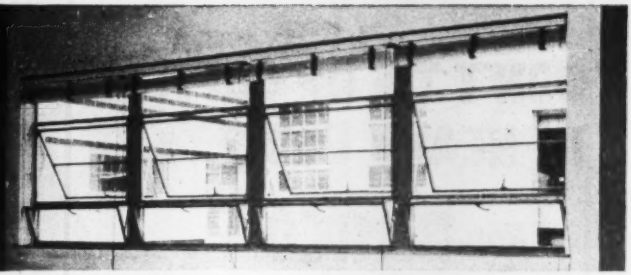
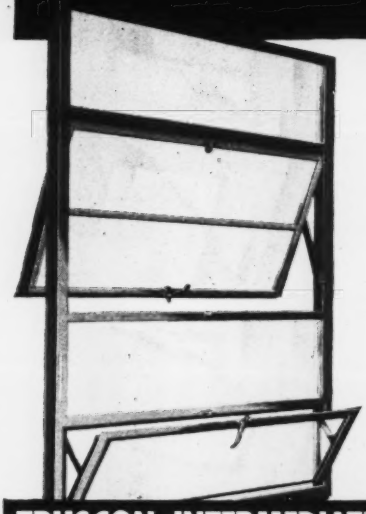


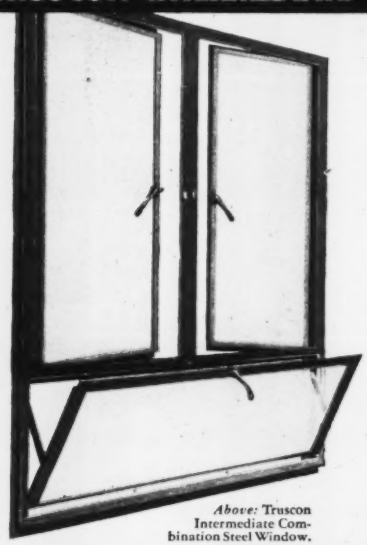
Left: Truscon Intermediate Projected Steel Window.

Above: Truscon Intermediate Projected Windows in the Dayton Rubber Company . . . Dayton, Ohio.



TRUSCON INTERMEDIATE WINDOWS

Left: State Farm Insurance Bldg., Bloomington, Ill. Schaeffer & Hooton, Archts., John Felmley Co., Contr. Truscon Intermediate Projected & Intermediate Combination Windows used.



Above: Truscon Intermediate Combination Steel Window.

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CONSTRUCTION REPORTS—Second Section

Third Section Construction Reports on page 164

WATER SUPPLY

BIDS ASKED

May 16

Que., L'Assumption—Municipality, C. Roy, secy., City Hall, filtration plant, pipe laying, water conduits, etc. Plans deposit $25., filtration plant equip. supplied and installed. Plans deposit $25. C. E. Gravel, 87 Levesque Blvd., L'Abord-a-Plouffe, engr.

Que., Nicolet—A. Proult, town clk., Nicolet, reservoir, and imprv. water sys. E. Beaulac, Nicolet, engr.

May 20

Mo., Unionville—City, City Hall, water treatment plant. $30,000. Plans deposit $10. Frank Beard, Kahota, engr.

N. Y., New York—Comr. Water Supply, Gas & Electricity, Municipal Bldg., Zone 7, watermains, appurtenances Park Ave., E. 68, W. 65 Sts., Transverse Rd. 1 and in Central Park, with connection at shaft 15. Plans deposit $5.

LOW BIDDERS

Calif., Ione—State Div. Architecture, P. Wks. Bldg., Sacramento, Apr. 26, concrete pipelines at Preston School of Industry, from J. Henry Harris, 2657 9 St., Berkeley, **$88,615.** CD 4/12—ENR 4/14.

CONTRACTS AWARDED

Fla., Gainesville—City, c/o John R. Kelly, plant supt., City Hall water and light plant. Owner builds, **$850,000.** CD 11/18/48—ENR 11/25/48.

SEWERS, WASTE DISPOSAL

BIDS ASKED

May 23

La., Bastrop—City, c/o mayor, City Hall, sewage disposal plant. Approx. $100,000. CD 10/6—ENR 10/28.

Minn., St. Louis Park—Village, J. Justad, clk., storm sewers for Storm Sewer Dists. 17 and 19. $50,000. W. C. Utton, village engr.

May 24

Tenn., Chattanooga—City, City Hall, 13,240 lin. ft. sanitary sewer lines in East St. Elmo Sect. CD 4/13/48—ENR 4/29/48.

LOW BIDDERS

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, Apr. 26, 2.9 mi. 8 in. vitr. clay sanitary sewers in Emerson Pl., Wilmar, from Bob Bosmyak, 3014 Worther St., **$61,677,** est. $63,200***2.84 mi. 8 and 10 in. vitr. clay sanitary sewers, Watcher St., etc. Bell Gardens, from Max Melosevitch, 7233 Bernard St., **$55,735,** est. $58,000***storm drain, appurtenances Michilinda St., Arcadia, from Steve P. Rados, 2975 San Fernando Rd., **$126,578.** CD 4/7—ENR 4/14.

Pa., Mechanicsburg—Municipal Auth., Mechanicsburg Boro, Municipal Bldg., Apr. 29, sewerage sys., from Inter County Constr. Co., 4720 Baltimore Ave., Hyattsville, Md., **$553,-149;** treatment plant, from Daniel B. Keating Co., 3917 Baring St., Phila., **$326,088.** CD 3/31—ENR 4/7.

CONTRACTS AWARDED

●**Calif., Los Angeles**—City Bd. P. Wks., 153 City Hall, final units Hyperion Activated Sludge Plant, El Segundo, aeration system, to Peter Kiewit Sons, Arcadia and Fred J. Early Jr. Inc., 369 Pine St., **$6,170,537.** Bids 4/27. CD 5/2—ENR 5/5. Under LB.

●**Conn., Bridgeport** — City, Peter Brewster, dir. P. Wks., City Hall, Contr. 2, sewage disposal, constr., sewage treatment plant, primary sedimentation type, equip. for removal of grit and screenings, sewage pumping, sedimentation, skimming, chlorination and sludge disposal for vacuum filtration and incineration, East Side at Seaview Ave. and Wallace St., to Westcott Constr. Co., 93 High St., Attleboro, Mass., **$1,405,200.** Bids 4/12. CD 4/18—ENR 4/21.

N. J., Pennsauken — Pennsauken Twp. Comm., Pennsauken, sanitary sewers, various locations, Contr. 3, to Charles S. Moses, Edgewater Line, Edgewater Park, **$63,403.** Bids 4/25. CD 4/13—ENR 4/21.

BRIDGES

BIDS ASKED

May 20

N. Y., New York—Bd. Transportation, 250 Hudson St., Zone 13, viaduct structure from E. 180 to Amethyst Sts., for connection between White Plains Rd. and Dyre Ave. Bronx Boro.

May 24

Ala., Birmingham — Jefferson Co. Courthouse, bridge over Valley Creek, $50,000.

LOW BIDDERS

Iowa—State Hy. Dpt., Ames, Apr. 26, 17 rein.-con. box culverts, extens. 30x40 ft. I-beam bridge, 26x180 ft. continuous I-beam bridge 30x60 ft. I-beam bridge, 26x120 ft. continuous I-beam bridge, relocation Iowa 1 from southwest corner Sect. 19-78-7, north approx. 3 mi. northeasterly to corporation Line, Iowa City, Sect. 16-79-6, S. P. F 9 (3), Johnson Co., Group 1, from Moser & Wilson, Farmersburg, **$75,456***Group 3, same project, from Jensen Constr. Co., 1901 Easton Blvd., Des Moines, Zone 16, **$74,523***6x10x55 ft. creosoted wood flume, 26x180 ft. continuous I-beam bridge 0.038 mi. grading, Iowa 2, Middle Turkio River Crossing, between Sect. 27 and 34-69-38, S. P. F. 524 (10), Page Co., Group 2, from Brogon Constr. Co., 307 Masonic Temple, Des Moines, **$55,268***26x210 ft. continuous I-beam bridge, C. S. 275, south of Council Bluffs, over Proposed Indian Creek Ditch, between Sects. 11 and 14-74-44 S. P. F 959 (1), Pottowattamie Co., from Larsen Bros., River Blvd., Council Bluffs, **$57,580***26x240 ft. continuous I-beam bridge 26x160 ft. continuous I-beam bridge, Iowa 196 over Coon River between Sects. 29 and 30-87-35 and over Cedar Creek between Sects. 19 and 20-88-35, S. P. F. 809 (2), Sac Co., Group 1, from Hobe Eng. Co., Sioux City, **$72,741***Group 2, same project, from F. O. Montgomery Co., Humboldt, **$59,623***8 rein.-con. box culverts extens., 12 ft. concrete slab bridge, 24 ft. concrete slab bridge extens., raise and widen 24x32 ft. I-beam bridge to 30 ft. roadway, raise and widen 24x40 ft. I-beam bridge to 36 ft. roadway, 18x40 ft. pony truss bridge on approach, 30x36 ft. I-beam bridge, two 30x50 ft. I-beam bridges, 30x60 ft. I-beam bridge, 26x120 ft. I-beam bridge, at various locations, Iowa 105 out of Lake Mills easterly into Northwood, S. P. F 938 (1), Winnebago-Worth Co., Group 3, from Jensen & Krage, 2220 Hawkeye Dr., Sioux City, **$178,796.** CD 4/1—ENR 4/21.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., Zone 7, May 3, reconstructing roadway on steel structure and east approach of City Island Bridge over Pelham Bay Narrows, Bronx Boro, from J. K. Welding Co., Federal St., Yonkers, base **$84,902;** alternate **$185,-365.** CD 4/14—ENR 4/21.

CONTRACTS AWARDED

●**Ill., St. Francisville**—City Council, F. E. Leathers, mayor, St. Francisville, 35 span 2,277 ft. steel, concrete, bridge over Wabash River between Illinois and Indiana to Smith & Johnson, 1799 Kentucky Ave., Indianapolis, Ind., **$1,860,616.** Est. $2,000,000. Awarded 4/29. CD 9/1—ENR 9/9.

●**New York**—Bureau Contracts & Accounts, Albany, 3 grade separation structures on Ontario Thruway between Routes 96 and 64, Ontario and Monroe Counties, to Baughman & Blair, Inc., Fisher St., Rochester, **$507,724.** Bids 3/30. CD 4/4—ENR 4/7, under LB.

STREETS AND ROADS

BIDS ASKED

May 18

†**Colorado**—Public Rds. Admin., 254 New Customhouse Bldg., Denver.

Larimer Co.—bit. surf. 2.736 mi. Fall River Hy., Rocky Mountain Proj. 1-D 2, near Estes Park.

Summit Co.—road constr. 6.975 mi. Loveland-Fremont Pass, Colo. Forest Proj. 33-A 1 and 2, Loveland-Fremont Pass. W. B. Matteson, div. engr. CD 3/29—ENR 4/14.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $48,-000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	**Latin America**
Sewers, Waste Disposal	**Public Buildings**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	

Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architectural plans.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
● Projects of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

May 19

Miss., Jackson—City, paving various streets, Plans deposit $15.

May 24

Calif., Los Angeles—Bd. Supervs., Los Angeles Co., 501 Hall of Records, imprv. approx. 1 mi. San Gabriel Blvd., Hermosa Dr. to Rose Ave., incl. curbs, walks, gutters, concrete paving, approx. $50,000. C. E. Arnold, co. engr. CD 9/19/45—ENR 9/27/45.

May 27

Tenn., Jackson—Madison Co., Jackson, 1 mi. road and 2 bridges on Ozier Rd. $100,000. Polk, Powell & Hendon, Chamber of Commerce Bldg., Birmingham, Ala., engrs. CD 4/26.

LOW BIDDERS

Iowa—State Hy. Dpt. Ames, Apr. 26, grading 1.615 mi. Iowa 110, F 747 (2) Buena Vista dn Sac Counties, from Ira Van Buskirk & Sons, Hawarden, **$115,881***7.062 mi. local road, S 1306 (1), Dubuque Co. from Charles T. Foley, Anamosa, **$50,174.** CD 4/13—ENR 4/21***13.389 mi. Iowa 93, F 380 (8), Fayette Co., and 16.159 mi. Iowa 105, F 938 (1), Winnebago and Worth Counties, from Marion Constr. Co., 506 Dunreath Dr. N. E., Marion, **$167,551** and **$218,811** respectively***12.634 mi. relocation Iowa 1, F-9 (3), Johnson Co., from R. B. Burch, Inc., 249 33 Dr., S. W., Cedar Rapids, **$182,136***11.637 mi. County Trunk Rd. W. S 436 (3), Johnson Co., from Mickle & Ross Constr. Co., Newton, **$68,163***4.075 mi. Iowa 21, F-897 (2), Keokuk Co., from J. P. Strother, Eldon, **$58,170***13.596 mi. local road S 1269 (1), Webster Co., from Hilding Ekdahl, Cumberland, **$54,867***paving 0.892 mi. primary road, FN-963, Jasper Co. and 4.075 mi. Iowa 21 Keokuk Co., from Fred Carlson Co., Decorah, **$51,035** and **$185,360** respectively***stab. base, bit. surf. 9.169 mi. Iowa 101, F 263 (4), Benton Co., from Concrete Materials & Constr. Co., 405 Grandby Bldg., Cedar Rapids, **$201,433.** CD 4/14—ENR 4/21.

●**New York**—Bureau Contracts & Accounts, Albany, May 4, 2.48 mi. Hamlin, Part 2, S. H. 81, R. C. 49-48, Monroe Co., from Holmes & Murphy, Inc., Bank St., Orchard Park, **$71,738** est. $91,000***0.58 mi. separation with grades, New York Central R. R. with Whitehall Corners-Wrights Corners, S. H. 1324, FG.RC 49-51, FA.RC. 49-52, Westchester Co., from Camarco Contractors, Inc.***12.68 mi. Carmel, **$425,916** est. $428,000***12.68 mi. Cazenovia-Morrisville S. H. 5329, Morrisville-Bouckville S. H. 5330; Cazenovia Village, Pt. 2, S. H. 8119, FA.RC 49-47, Madison Co. from Harvey & Doughty Constr. Co., Oneonta, **$97,066** est. $100,000***2.16 mi. Southern State Parkway, Deer Park Ave. to Roselle Rd. SSP 49-2, Suffolk Co., from Zara Contg. Co., Inc., 11 Prospect Ave., Hewlett, **$534,346** est. $693,-000***0.72 mi. Major Deegan Expressway, Contr. 1A, FA.RDE, Bronx Co., from Poirer & McLane Corp., 33 W. 42 St., New York, **$2,296,641** est. $2,600,000***2.3 mi. Glens Falls-Lake George S. H. 417, Luzerne-Lake George, Pt. 2, S. H. 8116, FA 49-46, Warren Co., from Callanan Road Imprvt. Co., Quarry, South, South Bethlehem, **$66,977** est. $81,000***1.17 mi. North Hempstead Turnpike, S. H. 9018, FA. RC. 494-49, Nassau Co., from Nassau Constr. Co. Inc., and Frank Mascali & Sons, Inc., 69-34 51 Ave., Winfield, **$549,864.** Cancelled bids to have been opened May 4, PSC. 4234; 8253, Erie Co.; PSC. 9209, Chautauqua Co.; R. C. 49-50, Westchester Co., will readvertise. CD 4/26—ENR 4/28.

Texas—State Hy. Comn., Austin, Apr. 27, flexible base, double asph. 8.41 mi. St. Hy. 254, S 875 (2), Palo Pinto Co., from John F. Buckner & Sons Cleburne, **$187,188***wid'n, grading, structures and flexible base with White's 14.698 mi. Hy. US 90, FI 521 (3), Guadalupe Co., from E. E. Hood & Son, Mission Rd., San Artonio, **$68,245***c. conc. 4.301 mi. Hy. 183 and Loop 12 F. 634 (14) and F. 1089 (1), Dallas Co., from Texas Highway Equip. Co., 111 Commerce St., Dallas, **$340,458***reconditioning flexible base and base preservative 10.953 mi. Hy. FM 930, S 1114 (1), Washington Co. and stabil. fdn. courses, single asph. 9.78 mi. Hy. FM 544, Proj. S 560 (2), Collin Co., from K. W. McKinney, P. O. Box 190, Nacogdoches, **$67,844** and **$77,439** est. $65,000 respectively*** hot mix b. conc. and flexible base shoulders 4.598 mi. Hy. US 67, FI 826 (6), Dallas Co., from Public Constr. Co., Denton, **$388,366***flexible base, prime coat, single asph. 12.419 mi. Hy. FM 49 and 778, V-647-1-6 and V-429-2-1, Wood Co., from Howard Bros., Madisonville and R. B. Butler, Inc., Bryan, **$125,849***flexible base, single asph. surf. tr. 15.851 mi. Hy. FM 719, Proj. V 1090-1-1, Jackson Co., from Heldenfels Bros., Rockport, **$193,759***flexible base, double asph. surf. tr. 11.772 mi. Hy. 86, C 302-2-6, Castro Co., and flexible base, b. conc. 9.492 mi. Hy. US 84, F. 503 (10), Lubbock Co., from Ernest Loyd, P. O. Box 1120, Fort Worth, **$144,264** and **$310,250** respectively***structures, flexible base, double asph. surf. tr. 4.802 mi. Hy. St. 36, C-184-1-7, Coryell Co., from Fred Hall & Son, Valley Mills, **$170,452***grading, structures, surf. 0.946 mi. Loop 295, 4-45-7-1, Fannin Co., from L. H. Lacy Co., 5630 Yale Blvd., Dallas, **$63,832***asph. leveling up-course 17.057 mi. Hy. US 83 and 77, C-39-4, 12, 8 and 9-21, 5, 13 and 12, Hidalgo and Cameron Counties from South Texas Constr. Co., San Benito, **$82,900***flexible base, prime and seal coasts 10.243 mi. Hy. FM 71, Proj. S 49 (2), Titus Co., from Pioneer Trucking & Contg. Co., Grapeland, **$103,807.** CD 4/6—ENR 4/14.

(Continued on page 153)

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(Continued from page 151)

Tex., Houston—Harris Co., c/o H. L. Washburn, aud., Courthouse, Apr. 25, 6.8 mi. road constr. and asph. paving Sheldon-Deer Park Rd. No. 2760-1-2-4, incl. earthwork and excavation in connection with paving, from Holland Page, Austin Hy., Austin, **$148,889.** Howe & Wise, 4119 San Jacinto St., engrs.

Washington—State Hy. Dpt., Olympia, rejected bids Apr. 29, grading, surf., draining 5.007 mi. Branch Rd., F.A.S. No. S 0405 (1), Yakima Co. L.B. **$83,594*****modified light bit. 6.12 mi. Mabton to Bickleton Rd., F.A.S. No. S-0396 (2), Yakima Co., L.B. **$123,837*****cancelled bids to have opened Apr. 29, stockpiling Primary State Hy. 5, Enumclaw to Chinook Pass, King and Pierce Counties, **$40,225.** CD 4/14—ENR 4/21 and CD 4/13—ENR 4/21.

CONTRACTS AWARDED

●**Mo., St. Louis**—City, c/o Henry W. Dawson, street comr., City Hall, 12 and Market Sts., resurf., repairing, maintenance, 992 mi. paved streets, 434 mi. paved alleys, own forces, **$1,000,000.** CD 4/2—ENR 4/18/46.

†**Montana**—P. Rds., Admin., Post Office Bldg., Missoula, clearing, grubbing, grading, drainage, bridge 10.234 mi. Y. G. B. Line Hy., Lewis & Clark National Forest, Montana Forest Hy. Proj. 32-A5, D4, Cascade Co., to White Bros., Walla Walla, Wash., **$115,021.** Bids 4/29. CD 4/30.

●**Ohio**—State Hy. Dpt., Columbus, b. conc. wid'n., resurf. 5.19 mi. U. S. R. 224, Ashland Co., to Ohio Road Improvt Co., 30 E. Broad St., Columbus, **$147,360*****b. conc. resurf. 4.921 mi. S.R. 307, Ashtabula Co., to The Koski Constr. Co., National Bank Bldg., Ashtabula, **$71,004*****waterbound macad.-bit. road mix 0.473 mi. S.R. 148, construct steel, concrete bridge No. BE-148-244, S.R. 148, Belmont Co., to The Baker & Hickey Co., 85 E. Gay St., Columbus, **$163,697*****bit. tr. 31.16 mi. Proposals 1 to 8 (inclusive), Delaware and Franklin Counties and bit. tr. 14.28 mi. Proposals 1 to 3 (inclusive), Champaign and Clark Counties, to S. G. & W. Constr. Co., 317 S. Vine St., Marion, **$63,131** and **$61,124** respectively***bit. tr. 40.05 mi. Proposals 1 to 9 (inclusive), Crawford and Richard Counties and bit. tr. 21.27 mi. Proposals 1 to 5 (inclusive), Erie and Huron Counties to Lester Baker, St. Joe, Ind., **$69,321** and **$60,602** respectively***waterbound macad.-b. conc., 1.05 mi. U.S.R. 23, Delaware Co., to James T. Shidecker, Sunbury, **$144,217*****waterbound macad.-bit. road mix construct continuous steel beam bridge with concrete deck and substructure, Bridge No. HO-76-139, 0.414 mi. S.R. 76, Holmes Co., to Menuez & Skemp, Millersburg, **$136,667*****bit. road mix 2.67 mi. S.R. 93, Huron Co., to Dandua & Nardini, 727 Broadway, Lorain, **$148,858*****waterbound macad.-b. conc. 0.157 mi. and construct continuous concrete slab bridge with concrete substructure, Bridge No. MN-98-08, S.R. 98, Marion Co., to R. W. Wander, 793 S. Chesterfield Rd., Columbus, **$51,777*****bit. tr. 24.74 mi. Proposals 1 to 7 (inclusive), Medina and Wayne Counties, to The Lytle Oil Co., Pittsburgh and E. South Sts., Wooster, **$66,188***** bit. tr. 16.88 mi. Proposals 1 to 3 (inclusive), Miami Co., to Greenville Bituminous Products Co., Greenville, **$53,967*****b. conc. wid'n., resurf. 2.56 mi. U.S.R. 23, Ross Co., to Brewer & Brewer Sons, Inc., 81 W. Water St. Chillicothe, **$55,892.** Grand total **$1,293,806.** Bids 4/26. CD 4/14—ENR 4/21.

●**Pennsylvania**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, grading drainage structure, paving 5.33 mi. Sect. 24A, Philadelphia Extension from point 260 ft. west of L.R. 38032 in S. Londonderry Twp., easterly 28,124 ft. to point 3,850 ft. east of the Reading and Cornwall R. R., Penntownship, Lancaster and Lebanon Counties, to The Harrison Constr. Co., 1101 Western Ave., Pittsburgh, **$3,381,286.** Bids 4/26. CD 4/29—ENR 5/5, under LB.

Pennsylvania—State Hy. Dpt., Harrisburg, wid'n., macad. surf. 4.06 mi. U. S. 219, from point 4 mi. from Somerset to point 3.5 mi. from Jennerstown, incl. rein.-con. bridge to eliminate grade crossing, Somerset Co., to Nichols Constr. Co., Brookville, **$770,340.** Bids 4/22. CD 4/26—ENR 4/28, under LB.

●**Pennsylvania** — State Hy. Dpt., Harrisburg, wid'n., macad. surf. 5.79 mi. U. S. 611 from near Harrow to north of Kintersville, in Nockamixon and Durham Twps., incl. I-beam bridge and exten. 3 rein.-con. bridges, Bucks Co., to Keelor Constr. Co., Perkiomenville, **$276,907;** wid'n. 1.25 mi. T. R. 14, Canton Boro, north through Canton and Troy Twps., Alba Boro, exten. 7 rein.-con. structures, constr. 1 rein.-con. bridge, Bradford Co., to Highway Paving Co., 1408 Edgevale Rd., Phila., Zone 31, **$578,904.** Bids 4/22. CD 4/26—ENR 4/28, under LB.

●**South Dakota**—State Hy. Comn., Pierre, to H. F. Emme Constr. Co., Rapid City, service grav. 8.383 mi. FAS 106A (2), Todd Co., **$60,-565*****to C. A. Wagner Constr. Co., 230 E. 8 St., base course 7.078 mi. F 63 (3) and F 192 (4), **$105,291;** and base course 5.013 mi. F 132 (3) **$78,394** both McPherson Co., grav. service 14.001 mi. F 255 (2), Brule Co., **$77,302*****to Northwestern Eng. Co., Rapid City, base course 10.799 mi. FI 185 (26), Jones Co. **$102,866*****to W. E. Bartholow & Sons Constr. Co., Huron, bit. 6.998 mi. S 229 (1), Beade and Hand Counties, **$89,809*****to Peter Kiewit Sons' Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., bit. 14.147 mi. F 170 (26), Minnehaha Co., **$263,324*****to C. H. Lien Constr. Co., Rapid City, bit. 12.489 mi. F 184 (14), Beadle Co., **$237,737*****to Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis,

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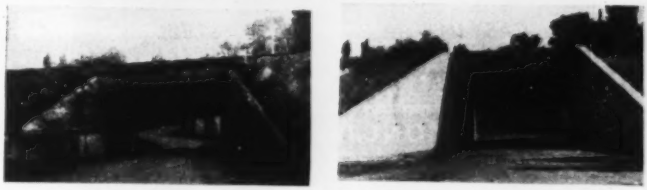

The picture at the left shows an underpass near Pittsburgh as it used to be. Surface was badly disintegrated and the low end walls and wings encouraged troublesome slipping of embankment and ballast.

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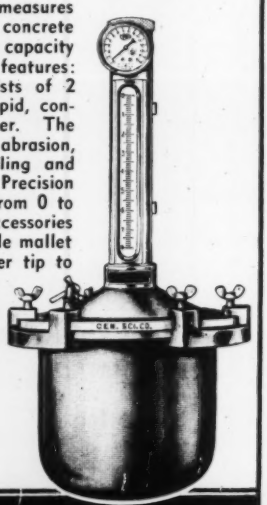

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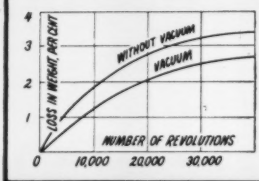

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Minn., bit. 14.515 mi. F 193 (12), Brookings Co., $259,231***to Roberts Constr. Co., 1018 Trust Bldg., Lincoln, Neb.; grav. 9.922 mi. S 278 (1), Moody Co., $89,440. Grand total $1,643,959. CD 4/15.

EARTHWORK, WATERWAYS

BIDS ASKED

May 18

†Georgia and South Carolina—U. S. Eng., Post Office Bldg., Savannah, Ga., clearing reservoir, Group 1, Clark Hill Proj., Savannah River Basin, Savannah River, Serial No. Eng-09-133-49-173. Extended date. CD 4/14.

†Louisiana—U. S. Eng., foot Prytania St., New Orleans, Zone 9, repair East Jetty, Southwest Pass, Mississippi River, Baton Rouge, to Gulf of Mexico, Serial No. Eng. 16-047-49-274.

May 18

†Louisiana—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, approx. 54,000 cu. yd. semi-compacted earthwork, approx. 2.5 mi. shell-surf. roadway on levee, Lake Pontchartrain Levees, Jefferson Parish, Serial No. Eng. 16-047-49-296.

About May 19

†Nebraska—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., construct Levee Unit 513-512 R, Sect. H, along left bank of Missouri River and both banks of Nemaha River south of Rulo, incl. 228,000 cu. yd. common excav., 1,175,000 cu. yd. earth fill, drainage structures and placing stone protection, Eng-23-208-49-199.

May 20

†Louisiana—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, repair Inner West Jetty repairs, South Pass, Mississippi River, Serial No. Eng. 16-047-49-272.

Minn., Willmar — Kandiyohi Co., J. W. Haines, aud., County Ditch 8-A, incl. 4 mi. open ditch, excav. and level banks, 360 lin. ft. 48 and 60 in. sectional concrete culverts, furnish, install 8,100 lin. ft. 10- to 14-in. drain tile, 4 outlet pipes, 5 tile inlets, $28,170. County Ditch 16-A, 12 mi. open ditch, excav. and level banks, furnish, install 780 lin. ft. 24- to 72- in. sectional concrete culverts, relay 202 lin ft. 24 and 60 in. sectional concrete culverts, furnish, install 7,500 lin. ft. 10- to 16- in. drain tile, 2 outlet pipes, $63,791. E. L. Chamberlin, Olivia, engr.

May 24

†Oklahoma—U. S. Eng., P. O. Box 61, Tulsa, Grand (Neosho) River Reservoir clearing for dam in Fort Gibson. Bidding in Lots A, B and C. Approx. $200,000. Extended date. CD 4/19—ENR 4/21.

May 25

†North Dakota—Dpt. of Agriculture, Soil Conservation Service, 306 N. 13 St., Fargo, drainage work Drain 31 and 40, being excav., leveling, spillbank, site clearance, field inlets, relaying culverts.

May 26

New Jersey—Spencer Miller, Jr., comr. State Hy. Dpt., Trenton, crib wall of concrete or metal units at Newark Water Div. Gate House, Route 6, Sect. 9, Little Falls Twp., Passaic Co. Plans deposit $10; adv. ENR 5/12.

June 14

●†Virginia—U. S. Eng., foot of Front St., Norfolk, concrete dam, Philpott Reservoir Proj., Smith River, Inv., Serial No. Eng-44-110-49-181, Franklin and Henry Counties.

Bids Asked

Tex., Houston—Southcrest, Inc., Union Natl. Bank Bldg., Unit 2, site grading, levelling, drainage ditch. $40,000.

LOW BIDDERS

●†Louisiana—U. S. Eng., foot Prytania St., New Orleans Zone 9, Apr. 29, Bayou Cocodrie Drainage Structure, 3 mi. west of Shaw on east bank Bayou Cocodrie, Concordia Parish, Serial No. Eng. 16-047-49-242, from T. L. James & Co., Inc., Ruston, $1,347,652. CD 3/21—ENR 3/24.

†Missouri-Nebraska—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., cancelled bids to have been opened May 6, levee repairs, Missouri River from Rulo, Neb., to St. Joseph, Mo., Serial No. Eng. 23-028-49-184. CD 4/29.

†Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, Apr. 28, dredging from ship channel to Liberty; from ship channel to north of Double Bayou, Galveston and Chambers Counties, from Bauer-Smith Dredging Co., Port Lavaca, $524,160. CD 4/19—ENR 4/21.

Texas—State Hy. Comn., Austin, Apr. 27, dredging and stock piling shell material adjacent to Nueces Bay Causeway, Hy. U. S. 181, C 101-6-9, Nueces Co. from Brown & Root, Inc., P. O. Box 139, Austin, $140,000. CD 4/6—ENR 4/14.

●†Washington—U. S. Eng., Walla Walla, project indefinitely postponed, Ice Harbor Dam, 1st step cofferdam and excavation within cofferdam. $2,000,000-$3,000,000. CD 4/26—ENR 4/28.

CONTRACTS AWARDED

†Idaho—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., restoration flood control works, Kootenai River and tributaries, Kootenai Flats, Serial No. Eng. 45-198-49-144, to Chisholm Constr. Co., Bonners Ferry, $187,990. Est. $220,889. Bids 4/26. CD 4/18.

AIRPORTS AND AIRBASES

BIDS ASKED

May 17

Ont., Kitchener—RUNWAYS—F. T. Collins, secy. c/o Dpt. Transport, Hunter Bldg., Ottawa, hard-surf. runway, taxi strip, Waterloo-Wellington Airport. Approx. $80,000. Plans deposit $10. CD 3/6/44—ENR 3/23/44.

May 18

†S. C., Congaree—AIR BASE BLDGS.—U. S. Eng., Post Office Bldg., Savanah, Ga., repairing, altering 3 bldgs. at Congaree Air Base, Serial No. Eng-09-133-49-178. CD 4/8.

May 19

†Ga., Marietta—WAREHOUSE—U. S. Eng., Post Office Bldg., Savannah, group and squadron warehouse, Marietta Air Force Base, Serial No. Eng-09-133-49-176. Bid date changed. CD 4/7-4/28.

La., Baton Rouge — ADMINISTRATION BLDG.—City, City Hall, administration bldg., Harding Field. $415,000. Plans deposit $50. A. Hays Town, Masonic Temple Bldg., Baton Rouge, archt. CD 12/28/44—ENR 1/11/45.

†Wyo., Cheyenne — AIR CONDITIONING SYSTEM—Civil Aeronautics Admin., City Hall, Kansas City, Mo., air-conditioning sys. in air traffic control tower at municipal airport.

On or About May 20

†Ga., Marietta—RUNWAY EXTEN.—U. S. Eng., Post Office Bldg., Savannah, runway exten., Marietta Air Force Base.

May 20

Tex., Tyler — AIRPORT TERMINAL — City, airport terminal. **$100,000.** Bid date changed. Gregory & Cates, 207 E. Erwin St., engrs. CD 4/28—ENR 5/5.

May 21

Tex., Tyler—AIRPORT TERMINAL—City, J. G. Rollins, mgr., airport terminal. $100,000. Gregory & Cates, 207 W. Erwin St., archts. CD 7/23—ENR 8/5.

May 24

●†Alaska—QUARTERS, WAREHOUSE, etc.—U. S. Eng., (P. O. Box 942, c/o P.M., Seattle, Wash.), Anchorage, civilian bachelor officer quarters, Eng-95-507-49-10; warehouse and storage, Eng. 95-507-49-DEF-11, at Ladd Air Force Base. $1,000,000-$2,000,000 each. CD 10/26/48—ENR 11/11/48.

LOW BIDDERS

Ia., Burlington—TERMINAL BLDG.—City, City Hall, rejected bids Feb. 8, airport terminal bldg., Burlington Municipal Airport. Will readvertise, CD 2/2, under LB.

●Mich., Detroit—RUNWAYS—Wayne Co., 3800 Barium Tower, Detroit, May 2, three runways, from Denton Constr. Co., 7-170 General Motors Bldg., Julius Porath & Son, 702 Transportation Bldg., and Cooke Contg. Co., 1116 Penobscot Bldg., **$1,307,473.** CD 4/21.

N. Y., Idlewild—AIRPORT—Port of New York Auth., 111 Eighth Ave., New York, Zone 11, May 2, furnishing, installing utility services for Hangars 3 and 4, Contr. NYA-26, from Gull Constr. Co. Inc., 518 Porter Ave., Brooklyn, Zone 22, **$562,680;** access roads and parking and storage areas for Federal Bldg., Contr. NYA-34, from MacAsphalt Constr. Corp., 32-15 Lawrence St., Flushing, **$173,869.** CD 4/14—ENR 4/21.

Pa., Phila.—RUNWAY—Dpt. P. Wks., City Hall Annex, Apr. 23, runway extens., taxiways, clearing and grading, Phila. International Airport, from Buckley & Co., Inc., 1317 S. Juniper St., **$190,608.** CD 4/13.

†Wis., Madison — NATIONAL GUARD FACILITIES—U. S. Eng., Merchandise Mart, Chicago 54, Ill., Apr. 21, National Guard Facilities for Wisconsin Air National Guard at Traux Field, Serial No. Eng-09-032-49-76, from Harold Furtell Constr. Co., 1212 Pioneer Bldg., St. Paul, Minn., **$466,000.** Est. $590,881. CD 3/28—ENR 3/31.

CONTRACTS AWARDED

N. Y., Buffalo—AIRPORT IMPRVS.—Dpt. P. Wks., City Hall, grading, paving, drainage at airport, to Depew Paving Co., 4955 Broadway, Depew, **$582,000.** Bids 3/16. CD 2/28—ENR 3/3.

FOREIGN

India—United Provinces Pub. Wks. Dpt., Lucknow, asking interested contracting firms to prepare data on their qualifications to bid on Jumna Hydro-Electric Project, incl. 2,000 ft. barrage and 8 mi. concrete lined power channel leading to 2 generating stations, dam will involve 45,000,000 cu. ft. earthwork. $4,500,000.

PUBLIC BUILDINGS

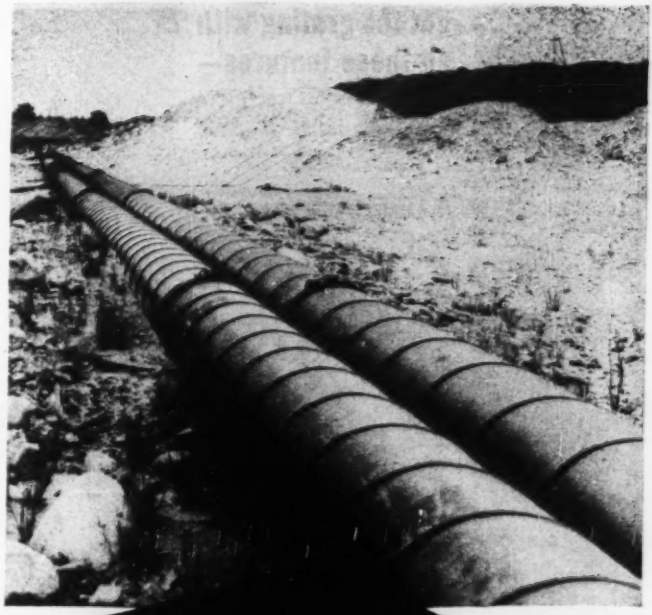
BIDS ASKED

May 18

Conn., New Canaan — Bd. Educ., Saxe Jr. High School, New Canaan, school. Plans deposit $25. Sherwood, Mills & Smith, 74 W. Park Pl., Stamford, archts. CD 3/10/48—ENR 4/1/48.

N. Y., Flushing—Supt. School Buildings, Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, general contract, P. S. 177, 188 St. from 56 to 58 Aves. Plans deposit $11. CD 10/21—ENR 11/11.

Pa., Phila.—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, remodeling Female Patient Bldgs. 8 and 10 at Phila. State



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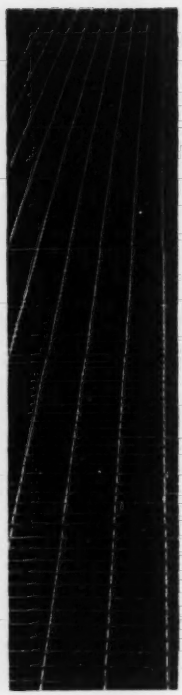

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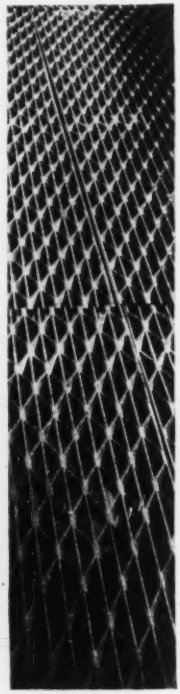

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Hospital. Plans deposit $7.50 for general, $5 for others. Savery, Scheetz & Gilmour, 1500 Walnut St., archts. A. F. Jones, c/o owner, ch. engr. CD 6/1—ENR 6/3, under LB.

Que., Hull—J. M. Somerville, secy., c/o Dpt. P. Wks. Hunter Bldg., Ottawa, Ont., excav. for National Printing Bureau. Approx. $350,000. Plans deposit $50. G. Brault, c/o owner, and E. Cormier, 3675 Cotes des Neiges Rd., Montreal, archts. CD 7/9—ENR 8/5.

May 19

Minn., Appleton—National Guard, U. S. Property & Disbursing Office, Camp Ripley, Little Falls, 1 story, 52x218 ft., brick, motor vehicle storage bldg. $68,000. P. C. Bettenburg & Co., 1437 Marshall Ave., St. Paul, engrs.

Minn., Duluth—National Guard, U. S. Property & Disbursing Office, Camp Ripley, Little Falls, 1 story, 52x218 ft., brick motor vehicle storage bldg. $68,000. P. C. Bettenburg & Co., 1437 Marshall Ave., St. Paul, archt.

†**N. J., Dover**—U. S. Eng., 120 Wall St., New York, 5, N. Y., rocket and powder bldg. at Picatinny Arsenal. CD 10/20/46 — ENR 12/12/46.

†**N. M., Albuquerque**—U. S. Eng., P. O. Box 1538, heating plant addns., Sandia Base, Serial No. Eng-29-005-49-79. CD 4/20—ENR 4/28.

†**N. M., Albuquerque**—U. S. Eng., P. O. Box 1538, erecting four butler bldgs. Sandia Base, EOP-940, Serial No. Eng-29-005-49-87. CD 4/26—ENR 4/28.

May 20

Ind., Richmond—Bd. School Trustees, H. C. Mills, secy., High School Bldg., 1 story, 37x80x 430 ft., brick, rein.-con. steel, East Haven School, $450,000. Plans deposit $50. McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, archts. Jno M. Rotz Eng. Co., 814 Merchants Bank Bldg., Indianapolis, mech. engr. CD 7/19/46—ENR 8/8/46.

Ia., Storm Lake — Buena Vista Co., Storm Lake, hospital. $540,000. Extended date. Wm. Buettler, Insurance Exchange Bldg., Sioux City, archt. CD 4/28.

N. Y., Flushing—Bd. Transportation, 250 Hudson St., New York, Zone 13, general contract Flushing Bus Garage, near Roosevelt Ave. between 123 and 126 Sts.

●**N. Y., Watertown**—Bd. Educ., Watertown, high school, $2,000,000. Plans deposit $35. Extended date. Wallace P. Beardsley, Seward Block, Auburn and Sargent, Webster, Crenshaw & Foley, 2112 Erie Blvd., Syracuse, archts. CD 4/26—ENR 4/28.

N. S., Tatamagouche—Minister of Hys. & P. Wks., Halifax, high school. $250,000. Plans deposit $75. T. P. Lusby, Dpt. P. Wks., Halifax, engr. CD 8/25/47—ENR 9/4/47.

●**Ont., Windsor**—A. J. E. Smith, engr., c/o Central Mortgage & Housing Corp., 295 Fleet St. W., Toronto, 500 houses, Windsor Proj. 12/49. Approx. $3,500,000. CD 11/26/47—ENR 12/11/47.

May 24

Calif., Burbank — Burbank Unified School Dist., 245 E. Magnolia St., 68x194 ft. frame, stucco classroom unit; 76x205 ft. concrete auditorium; 65x90 ft. gymnasium Jordan High School. $435,000. Kistner, Curtis & Wright, 816 W. 5 St., Los Angeles, archts.

Calif., Eldridge — State Div. Architecture, P. Wks. Bldg., Sacramento, 2 story, 37,645 sq. ft. concrete laundry and warehouse, at Sonoma State Home. Plans deposit $25. Anson Boyd, Sacramento, state archt.

Calif., Morgan Hill—Live Oak Union High School Dist., 18 classroom Live Oak Union High School, incl. corridors and kitchen. Approx. $250,000. Plans deposit $25. Robert Stanton, Carmel, archt. CD 10/21/48—ENR 11/11/48.

†**Calif., Point Loma (Sta. San Diego)**—U. S. Navy, 1220 Pacific Hy., San Diego, laboratory and supply bldg., Spec. 22011, $68,000. CD 6/23/48—ENR 6/29/48.

Conn., Shelton—Housing Auth., Municipal Bldg., housing. $540,000. Plans deposit $50. Sherwood F. Jeter, Jr., 25 Lewis St., Hartford, archt. CD 12/26/48—ENR 12/23/48.

May 26

N. Y., Geneseo—New York State Dormitory Auth., 93 State St., Albany, residence hall and dormitory. $643,000. Plans deposit $100. Rogers & Butler, Grand Central Terminal Bldg., New York, Zone 17, archts. CD 12/26/46—ENR 1/2/47.

May 31

N. Y., Elmira—Bd. Educ., School Dist. 1, City Hall, Elementary and Junior High School addn. $626,268. Robert Bickford, 215 W. Water St., archt. CD 8/16—ENR 8/19, under LB.

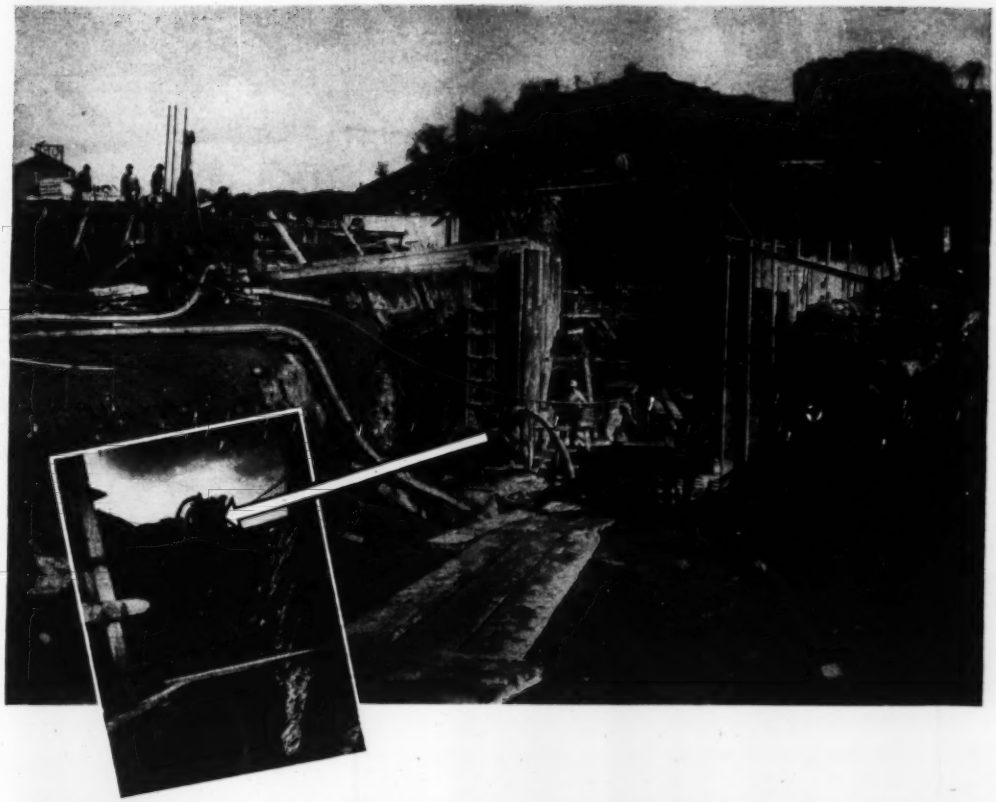
LOW BIDDERS

Ala., Fort Payne—DeKalb Co. Hospital Assn., Fort Payne, Apr. 27, hospital, from Butler & Cobbs, Bell Bldg., Montgomery, **$432,840.** CD 4/4—ENR 4/14.

Calif., El Cajon — State Div. Architecture, P. Wks. Bldg., Sacramento, Apr. 19, 1 story, Type II, California National Guard Armory, with rein.-con. floors and walls, from Cory & Longworth, Inc., Box 776, Chula Vista, **$75,-929.** CD 3/29—ENR 3/31.

Calif., Martinez—Contra Costa Co., Hall of Records, Martinez, 2 story, rein.-con. juvenile hall, to Haas & Rothschild, 274 Brannan St.,

(Continued on page 159)



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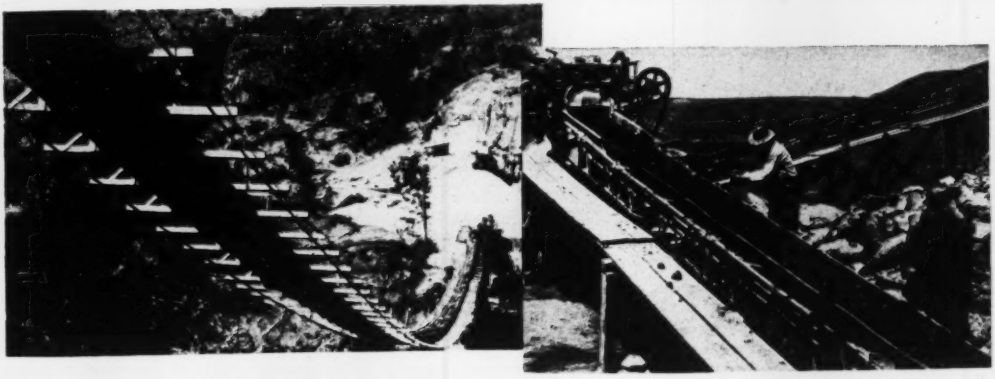

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RYERSON STEEL

(Continued from page 156)

San Francisco, base bid, less Alterations 1 and 2, **$489,400.** CD 4/25—ENR 4/28, under LB.

Calif., Modesto—Modesto City School Dist., Modesto, 1 story, rein.-con. auditorium with metal truss partitioins, Modesto High School, to E. A. Hathaway, 1098 5 St., San Jose, **$427,790.** Bids 4/25. CD 3/24—ENR 3/31.

Colo., Adams City and Derby—Consolidated Adams City, Derby, Irondale & Riverdale School Dist., c/o W. B. Fitzsimmons, Adams City, Apr. 22, 2 schools, from A. A. & E. R. Jones, 682 Wyandot St., Denver. **$160,000.** CD 4/8—ENR 3/14.

●**D. C., Wash.**—Pub. Bldgs. Admin., Federal Wks. Bldg., May 4, 7 story, limestone, granite Federal Court Bldg., Constitution Ave., John Marshall Pl., 3 and C Sts. N. W., from Charles H. Tompkins Co., 907 16 St. N. W., **$9,388,686;** elevators, from Haughton Elevator Co., 2117 K St. N. W., **$429,000.** CD 3/21—ENR 3/24.

N. Y., New York—Dpt. P. Wks., Albany, Apr. 27, electric connections, sub-station, temporaryy switching equip., etc., Manhattan State Hospital, Wards Island, electric work, from Theodore Kaish, 240 E. 28 St., **$79,695.** CD 4/7—ENR 4/21.

●**Pa., Woodville**—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, May 4, general contract admissions bldg. at Woodville State Hospital, from Landau Bros. Building Co., 125 First Ave., Pittsburgh, **$1,220,000.** CD 4/11 — ENR 4/21.

Tenn., Chattanooga—Hamilton Co. Memorial Hospital Assn., c/o Kaiser, Neal & Reid, archts., Keystone Bldg., Pittsburgh, Pa., cancelled bids to have been opened May 5, hospital. CD 4/21—ENR 4/28.

Tenn., Fayetteville—Lincoln Co., Fayetteville, Apr. 21, hospital addn., from Daniel Constr. Co., 822 7 Ave. S. Birmingham, Ala., **$414,938.** CD 4/1—ENR 4/14.

●**Va., Montevideo**—Rockingham Co. School Bd., Harrisonburg, Apr. 28, high school, from Castle Constr. Co., Grottoes, **$1,647,000.** CD 3/18—ENR 3/24.

CONTRACTS AWARDED

●**Conn., Southington** — Town, Bd. Educ., 2 story, basmt., brick, steel, concrete high school, Main St. and Eden Ave., to E & F Constr. Co., 94 Wells St., Bridgeport, **$1,190,981.** Bids 2/16. CD 3/1—ENR 3/3, under LB.

●**Mont., Butte** — Butte Memorial Hospital Assn., Butte, 6 story, steel, concrete, brick, stone hospital, to George A. Fuller Co., 597 Madison Ave., New York 22, N. Y., Approx. **$3,000,000.** Bids 4/14. CD 3/28—ENR 3/31.

N. Y., Utica—Bd. Educ., 13 Elizabeth St., school addn., to George E. Williams & Son, 125 Louisa St. **$264,227.** Bids 3/8. CD 2/28—ENR 3/3.

Tenn., Union City—Obion Co., Union City, hospital, to Gardner Constr. Co., 714 Allison St., Nashville, **$573,000.** Bids 3/21. CD 3/30—ENR 4/7, under LB.

●**Ont., Windsor**—Hydro Electric Power Comm. of Ontario, 620 University Ave., Toronto, steam generating station, Detroit River, initial capacity of 120,000 kw. (160,000 hp.) ultimate output of 240,000 kw. (320,000 hp.), to Dinsmore-McIntire, Ltd., 1204 Canada Bldg., Approx. **$7,000,000.** Bids 4/14. CD 3/22—ENR 3/24.

COMMERCIAL BUILDINGS

BIDS ASKED

May 25

Calif., Richmond — Richmond Memorial Youth Center, 1020 Nevin Ave., 2 story, rein.-con. recreation center, incl. gymnasium, club rooms, outside swimming pool. $350,000. Plans deposit $25. Donald L. Hardison, 522 23 St., archt.

June 7

●**Ala., Birmingham**—"365" Crippled Childrens Clinic, c/o Warren, Knight & Davis, archts., Protective Life Bldg., orthopedic clinic for crippled children. **$1,100,000.** Extended date. CD 4/14—ENR 4/21.

About June 8

●**Mo., Kansas City**—Hotel Muehlbach, c/o Trianon Hotel Co., Barney L. Allis, pres., 12 and Baltimore Sts., Kansas City, Mo. 12 story, 80x137 ft, brick steel, rein.-con. hotel **$1,500,000.** Neville, Sharpe & Simon, 1221 Baltimore St., archts. CD 4/21—ENR 5/5.

Bids Asked

●**Pa., Lancaster**—Lancaster General Hospital, c/o R. B. Hall, 528 Lime St., hospital addns. and alterations. **$3,000,000.** John Edmunds, 505 Park Ave., Baltimore, Md., archt. Fasant & Kooken, 2017 Maryland Ave., Baltimore, Md., engrs. CD 11/29—ENR 12/9.

●**Tex., Fort Worth**—Beverly Hills Development Co., c/o P. D. Henry, 298 W. 8 St., community center. **$2,000,000.** Herman G. Cox, N. P. Anderson Bldg., archt. CD 3/4—ENR 3/17.

SOON LETS CONTRACT

Ala., Anniston—Sears, Roebuck & Co., 675 Ponce de Leon Ave. N. E., soon lets contract retail department store.

N. J., Hightstown — Peddie School Bd., Hightstown, soon lets contract gymnasium and swimming pool. Approx. $150,000. Traut-

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wein & Howard, 1411 Walnut St., Phila., Pa., archts. CD 4/21—ENR 4/28.

●**Pa., Danville**—Geisinger Memorial Hospital, Danville, soon lets contract brick hospital addn. $1,000,000. Thomas Ellerslie, National Bank Bldg., St. Paul, Minn., archt. CD 5/2—ENR 5/5.

Que., Sillery (Postal Dst. Quebec City)—Bouchard & Rinfret, archts., 400 Blvd. Charest, Quebec City, soon lets contract 2 story, 138x295 ft., rein.-con., stone office, for Industrial Life Insurance Co., 319 Blvd. Charest, Quebec City. Approx. $500,000. (**Correction**—location of project). CD 5/2—ENR 5/5, under Que, Quebec City.

LOW BIDDERS

Pa., Corry—Corry Hospital Assoc., Corry, Apr. 25, Memorial Hospital, from H. Platt Co., 1104 Sellinger Ave., Erie, **$415,300.** CD 4/13—ENR 4/21.

Tex., San Antonio—L. Fred Hoey, Grovey and Broadway, Alamo Heights, San Antonio, 1 and 2 story, masonry community center, from Judson H. Phelps, 317 Insurance Bldg., $250,000. CD 4/5—ENR 4/21.

CONTRACTS AWARDED

Calif., Whittier—Rex Land Co., 942 S. La Brea St., Los Angeles, 118 stucco dwellings, scattered lots, to Albert Gersten, 942 S. La Brea St., Los Angeles, **$822,350.**

Conn., Norwalk—St. Thomas the Apostle Parish, Rev. Henry E. Flanagan, pastor, 1 story, bsmnt., brick, steel, limestone church, East Ave. and Fitch St., to William J. Lyons Co., 9 Mechanic St., Norwalk. Approx. **$300,000.** Edward F. Allodi, Leroy Ave., Darien, archt. CD 7/15/46—ENR 7/18/46.

Fla., Coral Gables—University of Miami, Coral Gables, classroom bldg., to Gust K. Newberg Constr. Co., 7117 N. W. 5 Court St., Miami. Approx. **$800,000.**

●**Ill., Chicago**—Draper & Kramer, 16 N. Dearborn St., 14 story, steel, brick concrete apartment, to Patrick Warren Constr. Co., 815 N. Kedzie St. Approx. **$1,000,000.** Loebl & Schlossman & Bennett, 333 N. Michigan Ave., archts.

Ill., Chicago—The Stouffer Corp., 135 Euclid St., Cleveland, O., 1st floor, bsmnt. restaurant within existing 16 story office and retail bldg., to Krahl Constr. Co., 350 N. Clark St. Approx. **$650,000.** Awarded 4/21. Ralph D. Huszagh, 6 N. Michigan St., archt.

Ill., Glenview—Our Lady of Perpetual Help Church, Glenview, steel, frame, brick church and parish house, to Rymont Corp., 228 N. LaSalle St., Chicago, **$650,000.** Awarded 4/21. Barry & Kay, 53 W. Jackson Ave., Chicago, archts.

Ill., River Forest—Wieboldt Stores, Inc., Lake and Harlem Sts., 3 story, bsmnt., brick, steel department store, to H. C. Wieboldt, 2353 Blue Island Ave., Chicago, **$900,000.** Holabird Root & Burgee, 180 N. Wabash St., Chicago, archts.

Minn., Collegeville—J. M. Busch, bishop, St. Cloud Diocese, general contract 4 story, 44x200 ft. brick seminary, to Wahl Constr. Co., St. Cloud. Approx. **$600,000.** F. W. Jackson, St. Cloud, archt.

Mo., Fulton—Westminster College, Dr. Wm. Hall, pres., Fulton, dormitory, Ed. H. Kuehn, 522 W. McCarty St., Jefferson City, **$185,801.** (**Correction**—cost of project.) CD 5/2—ENR 5/5, under LB.

Mo., Independence—Barnhart Bros., 1203 W. 27 St., apartment bldgs., day labor, **$496,000.**

N. J., North Hackensack—Ercole Tamburcelli, c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, 58 family apartment. Owner builds. **$800,000.**

N. Y., Babylon—Nair Associates, Inc., 150 Crown St., Brooklyn, 70 homes on 12 acre site, Virginia and Fine Island Aves. Owner builds. **$600,000.**

N. Y., Flushing—Auburndale Gardens, Inc., c/o G. W. Iser, archt., 109 E. 29 St., New York, Zone 16, 2 story apartment, Station Rd. and 191 St., apartment, South side Station Rd. and apartment, 192 St. and Station Rd., to Natwin Constr. Co., 22 W. 48 St., New York, **$513,000.**

●**N. Y., Hartsdale**—Hartown Realty Corp., c/o Arlen & Lowenfish, archts., 200 W. 72 St., New York, 18 two story apartments for 245 families on 16 acre tract. Owner builds. **$2,000,000.**

●**N. Y., Rochester**—Young Women's Christian Assoc., Franklin St., Y. W. C. A. bldg., to A. W. Hoepman & Sons Co., 569 Lyell Ave., Rochester, **$1,000,000.** Bids 3/8. CD 2/28—ENR 3/3.

●**N. Y., Yonkers**—Tuckahoe Realty Co., c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J., 124 family housing, Tuckahoe Rd. Owner builds. **$1,000,000.**

●**N. C., Asheville**—R. L. Coleman, F. B. Short & Z. B. Robinson, c/o contractor, 270 apartment units, to Wilburn & Sons, Asheville. Approx. **$1,000,000.**

Pa., Wilkinsburg—Westinghouse Electric Corp., 501 Pennwood Ave., Pittsburgh, 3 story L-shaped, 73x145 ft. and 48x115 ft., steel, brick educational center, concrete slab floor and roof constr., to Dick Constr. Co., 2532 Library Rd., Pittsburgh. Approx. **$450,000.** Bids 3/28. CD 3/15. —ENR 3/17.

Tex., Dallas—American Home Realty Co., c/o Angus Wynne, Jr., 2311 Salerno St., 1st unit,

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Des Moines, Ia. 915 Tuttle Street
Santa Clara, Cal. 621 Alviso Road

47,000 sq. ft. masonry shopping center, Zang Blvd. and Illinois St. in area in Oak Cliff, to American Constr. Co., Burt Bldg., Approx. $425,000. DeWitt & Swank, 2025 Cedar Springs Rd., archts.

Tex., Houston — Best Home Builders, Inc., 3255 Rosedale St., shopping center, own forces. $425,000. CD 2/11—ENR 3/3.

Tex., San Antonio—E. J. Burke & Sons, 4220 S. Zarzamora St., addnl. apartments off New Braunfels Ave. Owner builds. $450,000. CD 4/11—ENR 4/21

Wash., Parkland—Pacific Lutheran College, Parkland, chapel, auditorium, conservatory of music, to Steiro & Hansen, 920 North L St., Tacoma. Approx. $500,000. CD 6/4/45—ENR 6/14/45.

Wash., Seattle—Park Terrace, Inc., c/o R. O. Hagen, 10000 Lake Shore Blvd., 3½ story, 125x206 ft., masonry apartment, day labor. Approx. $500,000. CD 2/25—ENR 3/10.

Wash., Seattle—Summit Corp., 1704 Boylston Ave., 3½ story, 98x160 ft. frame apartment, day labor. $500,000. F. J. Rogers, 166 Roy St., archt.

Ont., Ottawa—Grey Nuns of the Cross, Sussex and Bruyere Sts., 3 story hospital addn., Bruyere Wing of Ottawa General Hospital, Cathcart St. between Sussex and Parent Sts., to Collet Freres Ltd., 1978 Parthenais St., Montreal, Que. Approx. $550,000. Gascon & Parent, 934 St. Catherine St. E., Montreal, Que., archts. CD 4/26—ENR 5/19.

INDUSTRIAL BUILDINGS

BIDS ASKED

May 18

Ga., Atlanta — GARAGE—Davison Paxon Co., c/o R. Kennon Perry, archt., Mortgage Guarantee Bldg., auto parking garage, Approx. $75,000.

May 20

Ala., Gorgas — PLANT — Commonwealth of Southern Corp., 600 N. 18 St., Birmingham, steam electric plant, 6th unit exten., for Alabama Power Co.

Ky., Puncheon—COAL TIPPLE, etc.—Puncheon Fork Coal Co., Puncheon, tipple, headhouse and chute, $150,000.

Bids Asked

Ont., Sudbury—BAKERY—George Weston Bread & Cakes Ltd., 98 Edmond St., 120x139 ft., brick, concrete, steel bakery addn. Approx. $90,000.

SOON LETS CONTRACT

La., Baton Rouge — CHANGE HOUSE — Standard Oil Co. of New Jersey, North Baton Rouge, soon lets contract 1 story, 26x84 ft. masonry, steel, concrete change house, south entrance of Esso Refinery. CD 11/8/46—ENR 12/5/46.

La., Bossier City—WAREHOUSE, etc.—Bossier Rural Electric Membership Co-operative, Bossier City, soon lets contract warehouse and office, Julian Sokolloski, Hunter Bldg., Shreveport, archt. George C. Henry & Co., 1097½ Texas Ave., Shreveport, engrs.

Tex., Dallas—PLANT—Thomas, Jameson & Merrill, archts., 820 N. Harwood St., soon lets contract 3 story 60,000 sq. ft. plant, air-conditioning, for Eastman Kodak Co., 343 State St., Rochester, N. Y., $750,000. Landauer & Guerrero, 4801 Lemon St., engrs. CD 1/12—ENR 1/20.

Ont., Beachville—SILOS—Gypsum, Lime & Alabastine Canada Ltd., Beachville, soon lets contract 7 rein.-con. stone storage silos. Approx. $50,000. R. S. Adams, c/o owner, engr.

Ont., Morrisburg — WAREHOUSE—Pyramid Paper Products Ltd., 975 St. Charles St., St. Laurent, Que., soon lets contract 48x100 ft. concrete, steel, brick warehouse. $75,000. C. A. Norris, ch. engr. CD 4/2/46.

LOW BIDDERS

Kan., Lyons—SALES and SERVICE—Young Motor Co., Lyons, rejected bids Mar. 23, auto garage and sales bldg., L. B. $88,196. CD 4/6—ENR 4/21, under LB.

CONTRACTS AWARDED

Ill., Stickney—GAS STATION—Public Service Co. of North Illinois, 72 W. Adams St., general contract brick, steel gas tap station, incl. transmission pipe, tanks, feeder pipes, to Ragner Benson, Inc., 4744 W. Rice St., Chicago. Approx. $500,000. Awarded 4/22.

●**Ky., Louisville** — WAREHOUSE — National Distillers Products, 1378 Lexington Rd., design and construction brick, steel rein.-con. warehouse addn., to Sanderson & Porter, 1373 Lexington Rd., $1,800,000.

●**Ky., Louisville**—WAREHOUSE, etc.—Whittenberg & Irion Constr. Co., 2214 S. Floyd St., 1 story, concrete, brick warehouse, office, plant, 80x120 ft. garage, for A. & P. Tea Co. Owner builds. $1,700,000.

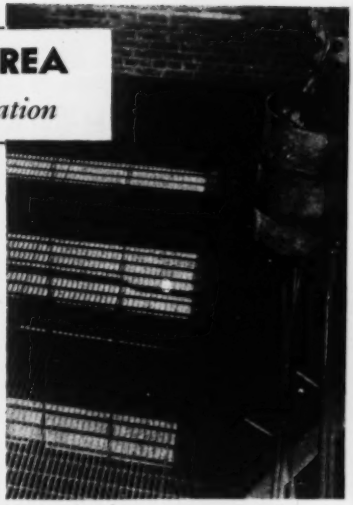
●**Tex., Houston** — PRODUCE TERMINAL — Produce Terminal, Inc., c/o Vernon C. Vaughan, 101 Travis St., design and construction, masonry, steel produce terminal, two 1,200 ft. long bldgs., to H. K. Ferguson Co., M & M Bldg. Approx. $2,000,000. CD 12/10—ENR 12/23.

●**Tex., Jourdanton**—PLANT—Humble Oil & Refining Co., Humble Bldg., Houston, compression and absorption plant, to Hudson Eng. Corp., 2711 Danville St., Houston. Approx. $1,750,000.

Ont., Lindsay — PLANT — Visking Corp., Lindsay, two plant wings, day labor. Approx. $500,000.

90% OPEN AREA

for light and ventilation



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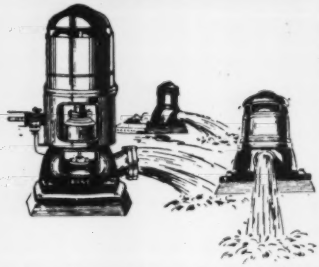

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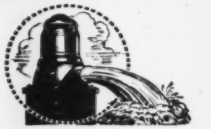

LAYNE

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UNCLASSIFIED

BIDS ASKED

May 18

Miss., Perkinston—STADIUM etc.—Perkinston Junior College, Perkinston, football field and stadium. Approx. $50,000. Extended date. John T. Collins & Assoc., Biloxi, archts. CD 4/1—ENR 4/7.

†S. C., Beaufort — LAWN SPRINKLER SYSTEM—U. S. Eng., Post Office Bldg., Savannah, Ga., lawn sprinkler sys. at Beaufort National Cemetery, Serial No. Eng-09-133-49-181.

South Dakota — RURAL DISTRIBUTION LINES—Douglas Electric Assn., Armour, labor for 246.5 mi. rural distr. lines, Douglas Co. $75,000. Raymond H. Reed & Co., Columbus, Neb. engrs. CD 11/26—ENR 12/30.

Tennessee—RURAL DISTRIBUTION LINES—Duck River Electric Membership Corp., Shelbyville, 388 mi. rural distr. lines, Maury, Marshall, Giles, Bedford, Moore, Franklin and Coffee Counties. Plans deposit $25. Wm. M. Wilson, East Side Public Square, Shelbyville, engr. CD 1/22/27—ENR 2/6/47.

†Va., Dahlgren — ROCKET LAUNCHER—Pub. Wks. Office, Potomac Naval Command, Naval Gun Factory, Wash., D. C., exten. rocket launcher at Naval Proving Grounds. Spec. No. 21811. Plans deposit $10.

B. C., Stewart—WHARF—J. M. Somerville, secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf repairs. Approx. $50,000. R. Blais, c/o owner, engr. CD 4/8/46—ENR 4/18/46.

Ontario — CAUSEWAY — J. M. Somerville, secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, reconstructing north side of east sect. La Salle Causeway. Approx. $100,000. Plans deposit $25. R. Blais, c/o owner, ch. engr.

May 19

Alabama — RURAL DISTRIBUTION LINES—Franklin Electric Co-operative, Russellville, 128.1 mi. primary lines, 12.9 mi. secondaries and 12.7 mi. services rural distr. lines, in north half of Franklin Co. with small portion in southern part of Colbert Co. Plans deposit $25. Ladd Eng. Co., 209 Wood Bldg., Fort Payne, engrs. CD 1/14—ENR 2/3.

New York—TUNNEL and PLAZA PAVING Triborough Bridge & Tunnel Auth., at Engineer's Office Bldg., 10 State St., New York, Zone 4, tunnel and plaza paving Brooklyn-Battery Tunnel, Contr BBT-23. Plans deposit $10. CD 9/8/44—ENR 9/21/44.

Que., Quebec City—QUAY WALL— Secy., c/o National Harbors Bd., West Block, Ottawa, Ont., quay wall at Shed 29, Quebec Harbor. Approx. $100,000. Plans deposit $100. CD 3/3/44—ENR 3/23/44.

Fla., Tallahassee — ELECTRICAL DISTRIBUTION SYSTEM—City, exten. electrical distr. sys.

SOON LETS CONTRACT

Alabama—RURAL DISTRIBUTION LINES—Joe Wheeler Electric Membership Corp., Hartselle, soon lets contract 382 mi. rural distr. lines, Morgan Co., A. D. McWhorter, Jr., 212½ Union St., Nashville, Tenn., engr. CD 12/13—ENR 12/23.

LOW BIDDERS

Alabama—RURAL DISTRIBUTION LINES—Sand Mountain Electric Co-operative, Fort Payne, rejected bids Apr. 19, 240 mi. rural distr. lines, in 22 mi. 3 phase, 2 mi. conversion 1 to 3 phase 1 mi. removal 177 single phase, 20 mi. secondary, 20 mi. services, 556 consumers all lying in De Kalb and Jackson Counties, L.B. **$320,299.** CD 3/2—ENR 3/5, under LB.

●Minnesota—RURAL DISTRIBUTION LINES—Rural Co-operative, Power Assn., Maple Lake, Apr. 13, 244 mi. rural distr. lines, Pine, Chisago, Isanti, Sherburne, Mille Lacs, Meeker, Kandiyohi, Benton and Wright Counties, from McHugo Electric Co., Mankato, **$1,051,621.** CD 3/23—ENR 3/31.

●N. M., Los Alamos—GAS PIPELINE—U. S. Atomic Energy Comn., Los Alamos, Apr. 28, natural gas pipeline, No. 291-49-122, Sect. 1, from Haddock Engineers, Ltd. & Assoc., Santa Fe, **$372,451;** Sect. 2 and Sects. 1 and 2, from Morrison Constr. Co., Austin, **$653,717** and **$1,048,725** respectively. CD 3/9—ENR 3/17.

†Alaska, Whittier—BOILER HOUSE, etc.—U. S. Eng., Pier 51, Seattle, Wash., rejected bids Apr. 7, addn. to temporary boiler house and addn. to and replacing steam line feeder to the warehouses, Eng 35-507-49-18. Will not re-advertise. CD 2/25—ENR 3/10.

●†Philippine Islands, Manila — PIER — U. S. Eng., APO 75, c/o P.M., San Francisco, Calif., rehabilitation Pier 13, South Harbor, Eng-94-701-49-10, from Gonzalo Puyat & Sons, Inc., Manila, **2,244,865** Pesos. Est. 1,720,774 Pesos. CD 2/14—ENR 2/17.

CONTRACTS AWARDED

Ill., Joliet—DRIVE-IN THEATRE—Bel Air Theatre Co., Thomas I. Wahner, pres., Joliet, drive-in theatre, junction Rt. 66-A and Romeo Rd., 5 mi. north of here, to Kaiser-Ducett Corp., Joliet. Approx. **$200,000.**

●Alta., Calgary—GAS DEPOSITS—Pacific Petroleum Inc., Frank McMahon, pres., Calgary, gas deposit development, own forces. **$1,000,000.**

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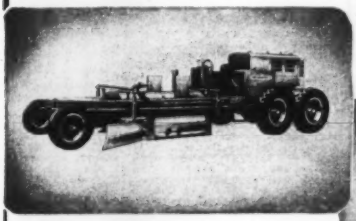

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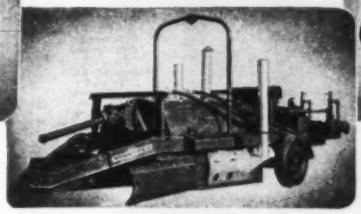

MODEL 54
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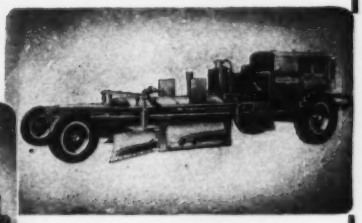

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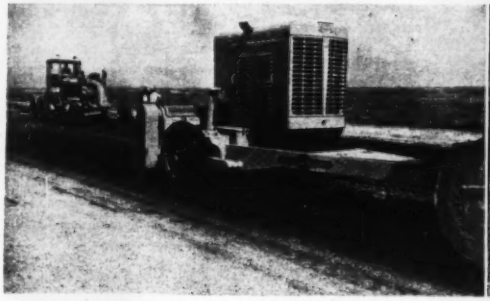
These machines produce a thorough complete mix in one pass at the lowest costs per ton. For mixing stabilized bases and wearing courses with any type of binder. Capacities from 100 to 350 tons per hour. Lowest initial cost and lowest upkeep cost, yet they produce the best quantity and quality.

THE PREPARIZER—A HEAVY DUTY PULVERIZER



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CONSTRUCTION REPORTS—Third Section

WATER SUPPLY

BIDS ASKED

May 16

Md., Towson—Bd. Comrs., Baltimore Co., Court House, 1,715 lin. ft. 18- to 36- in. reinforced concrete storm drains, 3,040 lin. ft. 8- to 21- in. vitrified clay pipe extra strength sewers and house connections, 1,200 lin. ft. 6 and 12 in. cl. watermains, etc. Plans deposit $5. Wm. F. Neal, ch. engr. CD 1/26/44—ENR 2/10/44.

May 23

Tex., Charlotte—Atascosa County Water Control & Imprvt. Dist. 1 Charlotte, water distr. sys., 50,000 gal. elevated tower and tank, $30,000; drilling, casing, developing water supply well, $30,000. Plans deposit $5 each. J. V. Curnutte, 1623 Transit Tower, San Antonio, engr.

Tex., Dallas—City, Earl Goforth, secy., City Hall, Main and Harwood Sts., 30 in., watermain, portion Central Blvd. $40,000. CD 12/1—ENR 12/23.

May 24

La., Lafayette—City, c/o C. A. Rodemacher, Lafayette, water well. CD 10/25/45—ENR 11/15/45.

June 13

Calif., Monterey Park—City, 320 W. Newmark Ave., 1 m.g. concrete water storage reservoir. Approx. $50,000. Plans deposit $10. Quinton Eng., Ltd., 816 S. Figueroa St., Los Angeles, engr. CD 7/16.

LOW BIDDERS

Calif., Ione—State Div. Architecture, P. Wks. Bldg., Sacramento, rejected bids Apr. 26, concrete pipelines at Preston School of Industry, L. B. **$88,615.** CD 5/2—ENR 5/12, under LB.

Tex., Garland—City, May 2, drilling, developing water supply well, from J. L. Myers & Son, 5306 Hines Blvd., Dallas, **$43,850.** Est. $30,000. H. B. Gieb & Assoc., Texas Bank Bldg., Dallas, engrs.

S. C., Rock Hill—City, C. H. Albright, mayor, Rock Hill, May 4, water supply facilities, Div. 1, from Boyd & Goforth, Inc., Pineville Rd., Charlotte, N. C., **$537,168.** CD 3/30—ENR 4/28.

CONTRACTS AWARDED

●**Kan., Kansas City**—City, Bd. P. Utilities, chemical bldg., basins, to Patti Const. Co., 1340 Admiral Blvd., **$1,462,512.** Bids 4/20. CD 5/3—ENR 5/5, under LB.

Mich., Adrian—Adrian Water Bd., City Hall, filtration plant, pump station, to Strom Constr. Co., 625 1 St. N. W., Grand Rapids, **$525,000.** CD 3/24—ENR 3/31.

Tex., Dallas—Ross W. Smith, Garland Rd. and Buckner Blvd., waterlines, facilities, in sect. of Arlington Park Estates, own forces. **$30,000.**

SEWERS, WASTE DISPOSAL

BIDS ASKED

May 17

Conn., Storrs—State, Reymond S. Thatcher, comptroller, State Capitol, Hartford, brick, concrete sewage disposal plant, treatment facilities, University of Connecticut. Plans deposit $50. Extended date. CD 4/26—ENR 4/28.

May 20

Ind., Seymour—Bd. P. Wks., City Hall, North Sanitary Interceptor Sewers, and two 8 and 12 in. sanitary sewers on East and South sides. $75,000. E. H. Brown, Hanover, consult. engr. CD 5/2—ENR 5/5.

May 23

Tex., Charlotte—Atascosa County Water Control & Imprvt. Dist. 1, Charlotte, sewage collection lines disposal plant. $50,000. Plans deposit $5. J. V. Curnutte, 1623 Transit Tower, San Antonio, engr.

Tex., Dallas—City, Earl Goforth, secy., City Hall, Main and Harwood Sts., Knights Branch sanitary sewer line along Mockingbird Lane. $70,000. CD 12/13/45—ENR 12/27/45.

Tex., Houston—City, M. H. Westerman, secy., City Hall, 900 Brazos St., sanitary sewer mains and lines, Daugherty St., etc. $135,000. L. Fugate, city engr. CD 7/31/46—ENR 8/22/46.

May 26

N. C., Southern Pines—Town, C. N. Page, mayor, Southern Pines, sewage treatment plant extens. Plans deposit $10. Paul M. Van Camp, Southern Pines, engr. CD 5/7/46—ENR 5/9/46, under LB.

July 7

N. Y., Irondequoit—Town Bd. at office Fred E. Hussey, clerk., 1340 Ridge Rd. E., Irondequoit (Rochester 5), addnl. housing and storage bldg. in connection with treatment plant of North St. Paul Sewer Dist., imprv. and reconstruct facilities thereof, appurtenances, and modification existing plant of sewage in such sewerage sys. Plans deposit $10; adv. ENR 5/19. CD 7/12/46—ENR 7/25/46.

LOW BIDDERS

La., New Orleans—Sewer & Water Bd., 526 Carondelet St., May 4, concrete lined and covered canal in Florida Ave. from Pump Station 3, at London Ave. to fairgrounds, from Bernard & Byrd, Inc., Interstate Bldg. **$805,137.** CD 4/13—ENR 4/21.

CONTRACTS AWARDED

Ga., Atlanta—Fulton Co.,c/o L. R. Epperson, co. engr., Courthouse, Outfall Sewer Projects S-8 and S-51, to Greene & O'Donnell Constr. Co., 2117 Piedmont Rd. N.E. **$130,650.** Bids 5/4. CD 4/25.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

May 17	**May 26**
North Carolina	**California**
South Carolina	**New Jersey**
May 20	**May 27**
Minnesota	**Pennsylvania**
North Dakota	**June 1**
May 24	**California**
Texas	**June 7**
May 25	**Oklahoma**
New York	**June 9**
Texas	**Montana**

May 31

Massachusetts—Mystic River Bridge Authority, 6 Beacon St., Boston, Zone 8, Contr. 11, Chelsea approach, Mystic River Bridge. Plans deposit $10. Charles A. Maguire & Assoc., 46 Cornhill, Boston, Zone 8, and J. E. Greiner Co., 1201 St. Paul St., Baltimore 2, Md., engrs.; adv. ENR 5/19.

LOW BIDDERS

Louisiana—State Hy. Dpt., Baton Rouge, May 4, vertical lift span, Company Canal Bridge 0.025 mi. approaches at Bourg, S. P. 65-03-13, F. A. S. P. S-381, (2), Terrebonne Parish, from W. R. Fairchild, Hattiesburg, Miss., **$169,921.** CD 3/25—ENR 3/31.

Tex., Beaumont—Jefferson Co., James A. Kirkland, judge, May 2, Proj. 62, Sect. 3, Taylors Bayou Bridge, approaches, from Trotti & Thomson, 2940 Crockett St., **$69,611.** Est. $90,000. CD 4/25.

CONTRACTS AWARDED

Oklahoma—State Hy. Dpt., Oklahoma City, 500 ft. I-beam bridge on county road south of Gate, Beaver Co., to E. E. Barber Constr. Co., 722 Wheeler St., Fort Smith, Ark., **$107,325.** Est. $118,473. Bids 5/3, awarded 5/4. CD 4/27.

Oklahoma—State Hy. Dpt., Oklahoma City, concrete, steel bridge on farm to market road east of Vinita, Craig Co., to Gaines Bros., Miami, **$50,508** est. $55,138***6 concrete, steel bridges on U. S. 60 east of Coodys Bluff, Nowata Co., to R. R. Tway & Co., 710 E. 19 St., Oklahoma City, Zone 5, **$348,952,** est. $389,436***3 concrete, steel bridges State Hy. 7, McCurtain Co., to O. R. Gragg, Henryetta, **$80,019** est. $88,368. Grand total $479,479. Bids 5/3, awarded 5/4. CD 4/27.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

May 17	**May 25**
Colorado	**New York**
Massachusetts	**Texas**
North Carolina	**May 26**
South Carolina	**California**
Virginia	**New Jersey**
May 18	**May 27**
Louisiana	**Pennsylvania**
Rhode Island	**June 1**
May 20	**California**
Illinois	**June 2**
Kansas	**California**
Minnesota	**June 7**
North Dakota	**Oklahoma**
May 24	**June 9**
Kansas	**Montana**
Texas	
Wisconsin	

May 19

†**Idaho**—P. Rds. Admin., P. O. Box 1559, Boise, surf. and bit. surf. 17.232 mi. Priest River Rd., Kaniksu National Forest Proj. 6-G and H, Unit 2. Plans deposit $10. L. M. Huggins, dist. engr. CD 4/4/46—ENR 4/11/46.

May 25

†**Wyoming**—Pub. Roads Admin., New Customhouse, Denver, Colo.,

Teton Co.—5.549 mi. road imprvs., Wyoming Projects 3- A11 and 6A and B combination, Hoback Canyon and Star Valley.

June 9

Ala., Mobile—Mobile Co. Bd. Revenue & Rd. Comrs., Mobile, imprv. 22½ mi. roads, J. B. Converse & Co., 104 St. Joseph St., engr. Extended date. CD 3/23—ENR 3/31.

LOW BIDDERS

California—State Div. Hys., Sacramento, May 4, c. con. and plant mix. surf. 13 mi., constr. grade separation structure, 2 undercrossings, pedestrian undercrossing, off-ramp overcrossing, hy. lighting, traffic signals, between Augusta St. and 25 St., from Guy F. Atkinson Co. & Charles L. Harney, 575 Berry St., San Francisco, **$2,810,379,** CD 3/28—ENR 3/31***place imported borrow on portions existing roadbed, plant mix on imported borrow cement stabilized surf. 4 mi. San Luis Obispo Co., from Valley Paving & Constr. Co., Pismo Beach, **$125,396***by. imprvs. between 0.7 mi. east of Ulatis Creek and 0.5 mi. west of Yolo Causeway, Solano and Yolo Counties, from Harms Brothers, 5261 Stockton Blvd., Sacramento, **$69,040.** CD 4/13—ENR 4/21.

Maryland—State Hy. Dpt., Baltimore, May 3, bit. resurf. Spec. B. 8.044 mi. along U. S. Rt. 301, Contr. AA-411-315, Anne Arundel Co., from Eastern Highways Corp., Belle Grove Rd., Brooklyn, Baltimore, **$156,300;** bit. resurf. 6.43 mi. U. S. Rt. 301, Contr. P. 619-515, Prince Georges Co., from Highway Constr. Co., 7 and T Sts. N. W., Wash., D. C., **$96,235.** CD 4/20—ENR 4/28.

Md., Baltimore—Mayor & City Council, City Hall, May 4, pavilion street, Hy. Contr. 967, from J. P. Reddington, 2 E. Lexington St., **$49,840,** CD 4/27***sheet asph. resurf. streets, Contr. 969, from Arundel Constr. Co., 442- E. Eager St., **$129,352***Contr. 970, from Baltimore Asphalt Block & Tile Co., 1520 N. Monroe St., **$126,293***Contr. 971, from P. Flannigan & Sons, Inc., 2405 Loch Raven Blvd., **$157,677.** CD 4/28.

Oklahoma—State Hy. Dpt., Oklahoma City, May 3, stabl. base, single bit. surf. course 7.407 mi. U. S. 270 near Forgan, Beaver Co., from Standard Paving Co., 2119 E. 11 St., Tulsa, **$178,055.** CD 4/27.

Tex., Houston—City, 900 Brazos St., asph. surf. 2 mi. stretch Winkler Dr., from Gaylord Construction Co., 906 Hewitt St., **$75,535.** CD 11/22/44—ENR 12/14/44.

Washington—State Hy. Dpt., Olympia, May 6, stockpiling Secondary State Hy. 9- A, Port Angeles to Pysht, Clallam Co., from Peter Kiewit Sons Co., Longview, **$55,105***bit. penetration macad. and reinforced con. girder bridge 4.44 mi. P.S.H. 2, Pine Canyon Revision, E.R.P. No. ER-F-20, (1), Douglas Co., from Goodfellow Bros., Wenatchee, **$871,589** CD 4/1—ENR 4/28.

CONTRACTS AWARDED

Idaho—State Hy. Dpt., Boise, bit. surf. 5.123 mi. McCammon-Robin Rd. and 6.033 mi. Malad-Daniels Rd., Bannock and Oneida Counties, to Holmes Constr. Co., Heyburn, Idaho, est. $66,766***bit. surf. 6.898 mi. U. S. 30 and State Hy. 16, Payette Co., to Quinn-Robbins Co., Inc., 703 S. 16 St., Boise, **$75,853,** est. $109,303***bit. surf. 7.06 mi. State Hy. 20, Canyon and Owyhee Counties to Hoops Constr. Co., Twin Falls, **$83,189,** est. $104,373. Grand total $215,173.

New Jersey—State Hy. Dpt., Trenton, construct 0.828 mi. Palisades Interstate Parkway, New Jersey Sect. 1A, from point north of Clinton Ave. to point south of Hudson Ave., Tenafly Boro, Bergen Co., to George M. Brewster & Son, Inc., 275 W. Fort Lee Rd., Bogota, **$674,198.** Bids 5/5. CD 4/18—ENR 4/21.

Oklahoma—State Hy. Dpt., Oklahoma City, to H. D. Youngman, Baxter Springs, Kan., asph. stabil. base, rock asph. surf. 9.076 mi. State Hy. 12 north of Rava **$192,785,** est. $793,492***asph. stabil. base and rock asph. surf. 10.12 mi. State Hy. 12 through Ravia, **$250,000,** est. $251,842***stabil. asph. base and rock asph. surf. 10 mi. State Hy. 12 south of Ravia, **$238,596** est. $242,982, all foregoing in Johnston Co. Grand total $682,315. Bids 5/3, awarded 5/4. CD 4/27.

●**Oklahoma**—State Hy. Dpt., Oklahoma City, to Hunter Constr. Co., traffic bound surf. 1.12 mi. U. S. 60 across Verdigris River bottoms, Nowata Co., **$87,767** est. $120,595***to S. E. Evans Constr. Co., 2914 North O St., Fort Smith, Ark., traffic bound surf. 2.216 mi. State Hy. 7, Mc Curtain Co., **$72,469** est. $79,662; traffic bound surf. 7.949 mi. State Hy. 7 southeast of Antlers, Mc Curtain Co., **$145,193** est. $161,300***to Standard Paving Co., 219 E. 11 St., Tulsa, stabil. base, single bit. 7.969 mi. U. S. 270 east of Turpin, Beaver Co., **$180,939** est $185,538; stabil. base, single bit. 7 mi. State Hy. 51, west of Canton, Blaine Co., **$155,282** est. $160,556; stabil. base, single bit. 6.26 mi. State Hy. 51 west of Canton, Blaine Co., **$89,613** est. $93,786***to Ames Constr. Co., 1647 Exchange St., Oklahoma City, Zone 8, asph. stabil. base, double bit. 7.645 mi. U. S. 70, east of Broken Bow at Arkansas State Line, Mc Curtain Co., **$218,380** est. $236,653***to Myron Groseclose, 4000 N. W. 39 St., Oklahoma City, Zone 7, single bit. 5.014 mi. farm to market road south of Fairmont, Garfield Co., **$57,520** est. $57,527; gravel base, double bit. 3.039 mi. State Hy. 92 south of Amber, Grady Co., **$51,549** est. $55,476*** to W. D. Fulton, 2304 N. W. 28 St., Oklahoma City, Zone 6, traffic bound surf. 6.583 mi. farm-to-market road south of Kansas State line, Nowata Co. **$61,666** est. $72,438***to Erwin Constr. Co., Pawhuska, single bit. surf. 6.202 mi. Hy. 99, Osage Co., **$54,061** est. $49,237***to Austin Bridge Co., 1813 Clarence St., Dallas, Tex., asph. stabil. base, single bit. 6.739 mi. State Hy. 58, north of Carnegie, Caddo Co., **$125,942** est. $131,408, asph. stabil. single bit.

(Continued on page 168)

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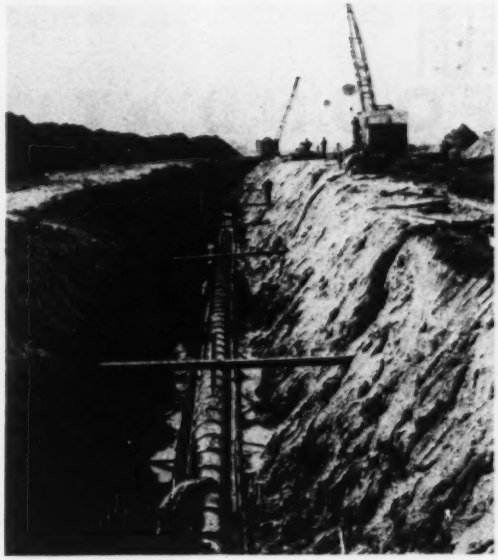

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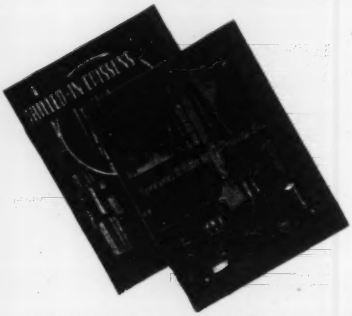

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(Continued from page 164)

6 mi. State Hy. 58, north of Carnegie, Caddo Co., **$121,576** est. $125,416; asph. stabil. and single bit. 8.493 mi. State Hy. 15 east of Moreland, Woodward Co. **$116,628** est. $126,254*** to Stone Constr. Co., Ada., double bit. surf. 6.968, farm-to-market road west of Hunter, Garfield Co. **$79,492** est. $85,058*** to Douglas & Ringstrew, Meridian, traffic bound surf. 6.98 mi. farm-to-market road south of Hobart, Kiowa Co., **$53,135** est. $60,823. Grand total $1,671,210. CD 4/27.

Tex., Cordelia — Jackson Co., Courthouse, Edna, surfacing approx. 19 mi. Cordelia area, force accounts. **$80,000.**

Tex., Corsicana—Navarro Co., Courthouse, Corsicana, farm-to-market road imprvs., Navarro-Chaneyboro Rd., **$78,000;** on Bryan-Purdon Rd., **$85,000,** own forces. CD 3/21/46—ENR 4/4/46.

Tex., Dallas—Ross W. Smith, Garland Rd. and Buckner Blvd., streets and hard pavinx, sect., Arlington Park Estates own forces. **$55,000.**

Tex., Karnes City—Karnes Co. Courthouse, farm-to-market roads, Precinct 6, **$70,000;** Precinct 3, **$90,000;** Precinct 5, **$85,000,** own forces. Grand total $225,000. C. C. Klumpp, Kenedy, engr.

Va., Roanoke—City, 107 Municipal Bldg., grading, paving in 1949 annexed areas, to Sam Finley, Inc., 1615 Cleveland Ave. S. W., **$54,635.** CD 6/30/44—ENR 7/13/44.

EARTHWORK, WATERWAYS

BIDS ASKED

May 20

†**Washington**—U. S. Eng., 628 Pittock Block, Portland 5, Ore., levee imprv. in Wahkiakum Diking Imprvt. Dist. 4, along levee on the south side of the district, approx. 1 mi. southeast of Skamokawa, Wahkiakum Co., Serial No. Eng.-35-026-49-509.

May 24

†**Louisiana**—U. S. Eng., foot Prytania St., New Orleans, Zone 9, approx. 3,925 lin. ft. standard board revetment, Red River, Bossier Parish, Inv. 49-300.

May 26

†**North Carolina**—U. S. Eng., 308 Customhouse, Wilmington, dredging Drum Inlet, Serial No. Eng.-31-075-49-57.

About May 28

†**Illinois**—U. S. Eng., 826 U. S. Court House & Custom House, 1115 Market St., St. Louis, Mo., levees involving 435,000 cu. yd. earth placement, left bank Mississippi River, Miles 162 and 166 above Ohio Columbia Drainage and Levee Dist., Proj. Item 11-A, Monroe Co., Serial No. Eng.-23-065-49-126.

June 7

†**Montana** — Bureau Reclamation, Dpt. Interior Bldg. 1A, Denver Federal Center, Denver, Colo., 1 lot ventilating ducts, bends, transitions, drain pipinx, plum well lining, appurtenances, 1 lot blowers with direct connected electric motor drive for Hungry Horse Dam, Spec. 2662; twelve 11 ft. by 15 ft. bulkhead gates, 1 bulkhead gate lifting beam for turbine draft tubes, Hungry Horse Power Plant, Spec. 2663, Hungry Horse Proj., L. N. McClellan, ch. engr.

June 9

†**Montana** — Bureau Reclamation, Dpt. Interior Bldg. 1A, Denver Federal Center, Denver, Colo., four fixed wheel gate frames, consisting of 4 track and seal seat assemblies, 290-A and 8 guide assemblies, 290-B, not incl. anchor bolts and 4 lots anchor bolts for penstocks, Hungry Horse Dam, Spec. 2667; 2 sets 15x36 ft. stop logs, eight logs each and two ⅝ in. special rubber drills for diversion tunnel at Hungry Horse Dam, Spec. 2666, Hungry Horse Proj. L. N. McClellan, ch. engr.

June 14

†**Wyoming**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., two 126 in. ring-seal gates and integral hydraulic hoists, position indicators, throttle valves, seal valves and one set handling equip., one control, incl. cabinet, piping auxiliary equip. and electrical equip. for Boysen Power plant, Missouri River Basin Proj., Boysen Unit, Spec. 2669. CD 5/25/44—ENR 6/15/44.

LOW BIDDERS

†**Kansas-Missouri**—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., cancelled bids to have been opened May 6, emergency repairs to levees on Missouri River, St. Joseph, Mo. to Atchison, Kan., Serial No. Eng.-23-028-49-185. Will readvertise. CD 4/29.

Ia., Oak Grove—West Carroll Parish Police Jury, Oak Grove, May 2, drainage project, involving 2,142,400 cu. yd. channel excav., from H. B. Hornsby, Bossier City. **$242,094.** CD 4/15—ENR 4.21.

†**Oregon**—Bureau Reclamation, Dpt. Interior, Bend, May 3, rehabilitation Ochoco Dam, spillway and outlet works, Crook Co., Spec. 2614, from Dragline Rentals Co., Box 237, Long Beach, Calif. **$573,545.** CD 3/23—ENR 3/31.

†**Washington**—Bureau Reclamation, Dpt. Interior, Yakima, cancelled bids to have been opened June 1, spillway alterations, at Keechelus Dam, Yakima Proj. Storage Division, Spec. 2655. CD 5/3—ENR 5/5.

CONTRACTS AWARDED

†California—U. S. Eng., 751 S. Figueroa St., Los Angeles, Zone 55, North Jetty and San Diego River and Mission Bay Proj., incl. approx. 3,300 ft. stone jetty, clearing, removing obstruction, excav., Serial No. 04-353-49-58, to Clyde W. Wood, Inc., P. O. Box 620, North Hollywood, **$893,850.** Bids 4/15, awarded 5/2. CD 4/26—ENR 4/28, under LB.

◆†Colorado — Bureau Reclamation, Dpt. Interior, Monte Vista, constr. Platoro Dam on Conjos River about 1 mi. upstream from Platoro, San Luis Valley Proj., Spec. 2594, to Hinman Brothers Constr. Co., P. O. Box 517, Ft. Collins, **$2,727,782.** Bids 4/12, awarded 5/5. CD 4/19—ENR 4/21, under LB.

Fla., Miami Beach—Ben Novack, c/o contractor, bulkhead and groyne, 31 to 32 Sts., to Taylor Constr. Co., Route 1, P. O. Box 180, Miami, **$10,000.**

AIRPORTS AND AIRBASES

BIDS ASKED

May 17

Ont., Fort William—RUNWAY—F. T. Collins, secy., c/o Dpt. Transport, Hunter Bldg., Ottawa, concrete runway, clearing, stumping, fencing, drainage and duct installations, surf. entrance road at Lakehead Airport. Approx. **$140,000.** Plans deposit $10. CD 4/13/48—ENR 4/29/48.

May 23

Alta., Medicine Hat — RUNWAYS — F. T. Collins, secy., c/o Dtp. Transport, Hunter Bldg., Ottawa, Ont., hard surf. tr. runways, parking apron and taxi strips at airport. Approx. $175,000. Plans deposit $10. CD 9/18/44—ENR 10/19/44.

LOW BIDDERS

†W. Va., Charleston—HANGAR—U. S. Eng., 830 W. Broadway, Louisville, Ky., May 4, hangar, boiler house, pump house, water storage reservoir for Air Natl. Guard Kanawha County Airport, from Engstrom & Wynn, 1117 Chapline St., Wheeling, **$359,000.** CD 4/15—ENR 4/21.

PUBLIC BUILDINGS

BIDS ASKED

May 19

Ky., Liberty—Casey Co., Liberty, hospital, Otis & Grimes, Taylor Bldg., Louisville, archts.

Mo., St. Louis—Missouri School for Blind, R. H. Thompson, supt., 3815 Magnolia Ave., St. Louis, at office Wm. L. Smith, state purch. agt., 105 Stte Capitol Bldg., Jefferson City, 2 story, 35x168 ft. brick, concrete school addn. and recreational center, incl. swimming pool, bowling alleys, locker room, dormitory, etc. Plans deposit $25. Bonsack & Pearce, Inc., 308 N. 6 St., archt. CD 2/4/43—ENR 2/11/43.

Tenn., Jackson — City, Parkview School, Parrish & Smith, Jackson, archts.

May 20

Calif., San Francisco—Bd. Regents, University of California, Comptroller Eng. and Architectural Div., 1379 3 Ave., San Francisco, Addn. No. 1, Medical Research Bldg., San Francisco Campus. Plans deposit $15.

Ind., Indianapolis—Bd. School Comrs., M. V. Bailey, bus. dir., 150 N. Meridian St., 2 story, bsmnt., 66x72 ft., brick, stone, rein.-con. school, 1410 Wade St. $300,000. Plans deposit $25. O. A. Tinslow, 618 Architects & Builders Bldg., archts. Jno. M. Rotz Eng. Co., 814 Merchants Bank Bldg., mech. engrs. CD 4/6—ENR 4/28.

May 23

Conn., Orange—Town, John Demarest, chn. Bd. Educ., Town Hall, 1 story brick, steel 12 room, auditorium and gymnasium school addn. $515,000. Sibley & Nichols, 7 S. Main St., West Hartford, archts. CD 7/8—ENR 7/22.

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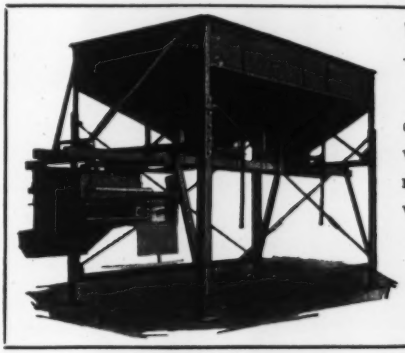

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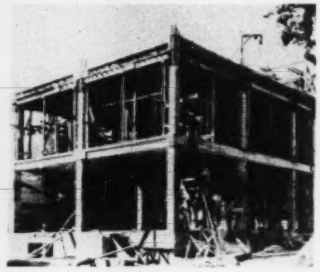

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May 24

Calif., Tracy—Tracy Union High School Dist., Tracy, rein.-con. steel Tracy Union High School bldgs., incl. classrooms, home-making bldg., locker and shower, gymnasium and corridors. Approx. $250,000. Bids 4/26 rejected. Plans deposit $25. Kump & Falk, 9 Main St., San Francisco, archt. CD 5/3—ENR 5/5, under LB.

Conn., Greenwich — Town, P. Wks., Dpt., Town Hall, 2 story, bsmnt., brick, steel Riverside School addn. Hendrie Ave. $350,000. W. B. Tubby, 125 E. 46 St., New York, N. Y., archt. Joseph W. Bailey, 34 E. Putnam Ave., engr. CD 6/12—ENR 7/22.

†**Tex., Fort Bliss**—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., 48 single type family quarters, Serial No. Eng-29-005-49-82. $450,000. CD 4/15—ENR 5/5.

May 25

Colo., Denver—City and County of Denver School Dist. 1, 414 14 St., 2 story, part bsmnt., approx. 148x263 ft. L-shaped Palmer Grade School, E. 9 and Grape Sts. Approx. $250,000. W. Gordon Jamieson, 818 12 St., archt. and engr.

May 27

Conn., Stratford—Gymnasium Bldg., Conn., Town Hall, 1,500 capacity brick, steel, gymnasium, incl. basket ball court, for Town. $400,000. C. Wellington Walker, 114 State St., Bridgeport, archt. CD 11/18—ENR 12/9.

May 31

†**Alabama**—Tennessee Valley Auth., New Sprankle Bldg., Knoxville, chemical plant gateway, Wilson Dam.

Calif., Chowchilla—Chowchilla Elementary School Dist., Chowchilla, Wilson Elementary School, Approx. $250,000. Plans deposit $20. Frank Wynkoop & Assoc., Fulton-Fresno Bldg., Fresno, archts.

†**Tex., Fort Bliss (El Paso P. O.)**—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., Dismantling, shipping from Camp Gruber to Fort Bliss, and reconstructing 60x220 ft. steel frame, corr. metal-covered Ordnance Repair Shop, Serial No. Eng-29-005-49-72. $60,000. CD 3/28—ENR 3/31.

Va., Ashland—At office B. T. Walton, School Supt., Ashland, 2 story, brick, cinder block Hanover County Training School. $300,000. Edward F. Sinnott, 112-A E. Cary St., Richmond, archt.

June 3

Idaho, Pocatello—Bannock Co., Court House, 1, 3 and 6 story, bsmnt., rein.-con. hospital. $900,000. F. H. Paradice, Jr., Dietrich Bldg., archt. CD 12/19/46—ENR 2/7/46.

June 7

●**Calif., Los Angeles**—Bd. Supervs. Los Angeles Co., 501 Hall of Records, psychopathic unit of General Hospital. $2,000,000. Adrian Wilson & Paul Williams, 816 W. 5 St., Los Angeles, archts. CD 4/13/48—ENR 4/29/48.

●**Tex., Tyler**—Smith Co., Ned Price, judge, Courthouse, hospital. $1,000,000-$1,500,000. Plans deposit $10 for general, $30 mechanical, $25 equipment. Shirley Simons, Broadway at 6 St., archt. CD 5/6/48—ENR 5/27/48.

About June 15

Ala., Mobile—State Docks Comm., c/o J. B. Converse & Co., archts. and engrs., 106 St. Joseph St., bulk handling plant. $750,000.

LOW BIDDERS

Calif., Berkeley—State Div. Architecture, P. Wks. Bldg., Sacramento, May 3, California School for Deaf, Unit 5, 1 story, rein.-con. structure and Unit 6, 2 story structure, 30,300 sq. ft. combined floor area, from Carrico & Gautier, 365 Ocean Ave., San Francisco. $436,130. CD 4/13—ENR 4/21.

●**Calif., Brawley**—Pioneer Memorial Hospital Dist., 324 Main St., Apr. 28, rein.-con. hospital and utility bldg., nurses quarters, from F. E. Young, Front and Island Sts., San Diego. $1,137,777.

Conn., Milford—Town, John A. Foran, supt. schools, Milford, Apr. 25, 75x275 ft., brick, steel school, Art St. and Mayflower Pl., from John Zandonella, 76 Chase St., Bridgeport. $359,400. CD 4/11—ENR 4/14.

Conn., Shelton—Town, Municipal Bldg., 40 White St., Apr. 26, 1 story, 150x225 ft., brick, steel addn. to Huntington School, from De Fonce Constr. Co., 110 Colonial Ave., Bridgeport. $343,450. CD 3/29—ENR 3/31.

†**Ga., Fort Benning**—U. S. Eng., 2301 Grant St., Mobile 7, Ala., May 4, family type quarters, Serial No. Eng.-01-076-49-125, and utilities and site imprvs. for family type quarters, Serial No. Eng.-01-076-49-138, from Williams Constr. Co., 1032 13 St., Columbus. $734,150. CD 4/13—ENR 4/21.

●**Md., Baltimore**—Mayor & City Council, City Hall, May 4, 2 story, brick, steel, concrete Benjamin Franklin School, Cambria St. and W. Bay Ave., Curtis Bay, from Philip Vizzini, 504 Stamford Rd. $1,088,000.

Miss., Carthage—Leake Co., May 4, hospital, from M. T. Reed Constr. Co., 162 Millsaps Ave., Jackson. $412,300. CD 4/11—ENR 4/21.

N. Y., Binghamton — Binghamton Housing Auth., City Hall, May 5, housing, from Vincent J. Smith, Inc., 1 Endicott Ave., Johnson City. $873,422. A. T. Lacey & Sons, 52 Exchange St., archts.

WATER IS "DUCK SOUP"...
WITH COMPLETE WELLPOINTS

Don't let ground water stop you. COMPLETE'S patented, fluted-tube wellpoints won't clog . . . can de-water every type of water-laden soil wherever wellpoint operation is practicable . . . are the simplest and most economical de-watering equipment known to present day engineering.

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2 to 5 stage jetting pumps available

COMPLETE MACHINERY & EQUIPMENT CO., INC.
LONG ISLAND CITY 1, N. Y.
Engineering agents throughout the U. S.

COMPLETE WELLPOINT SYSTEMS

KEEP YOUR CONVEYOR BELTS GOING

FLEXCO H D RIP PLATES are used in repairing rips and patching conveyor belts. Their use saves expensive replacements and extended shutdowns.

FLEXCO H D BELT FASTENERS make a strong, tight butt joint with long life. Recessed plates embed in belt, compress belt ends and prevent ply separation. Six sizes in steel and alloys.

● Avoid shutdowns and lengthen the life of your conveyor belts and bucket elevator belts by using Flexco belt fasteners. Thousands of companies have stepped up the performance of conveyor lines and cut costs by using Flexco methods.

Bulletin F-100 shows exactly how to make tight butt joints in conveyor belts with Flexco. Also illustrates step by step the latest practice in repairing rips and putting in patches.

FLEXIBLE STEEL LACING CO.
4656 W. Lexington St., Chicago

Write for your copy.

FLEXCO H D BELT FASTENERS
Sold by supply houses everywhere

●†Tex., Camp Hood (P. O. Killeen)—U. S. Eng., 606 Santa Fe Bldg., Galveston, May 3, 40 two-bedroom and 60 three-bedroom type housing. Inv. No. Eng.-41,243,49,262. from Ransdell Constr. Co., 1014 Liberty Bank Bldg., Dallas. $745,754. CD 4/20.

●Tex., Terrell—State Bd. Control, Hal Logan, chn., Austin, May 5, masonry, steel, concrete State Hospital dormitory wings, for Terrell State Asylum, from P. O'B. Montgomery, P. O. Box 923, Dallas, $1,247,000. Alt. 1, dormitory addn., $377,000. CD 3/29—ENR 3/31.

CONTRACTS AWARDED

●Calif., Camarillo—State Div. Architecture, P. Wks. Bldg., Sacramento, general contract 2 story, rein.-con. bldgs. at Camarillo State Hospital, incl. 216,000 sq. ft. floor area receiving and treatment unit, 28,000 sq. ft. administration unit and 27,000 sq. ft. bakery and commissary unit, to Williams & Burrows, Inc. & Carl N. Swenson Co., 10 California Dr., Burlingame, $2,570,715. Bids 4/26, awarded 5/3. CD 5/2—ENR 5/5, under LB.

Fla., Miami—Dade Co., Bd. Pub. Instruction, 275 N. W. 2 St., 1 and 2 story, 170x410 ft. Edison School, to Bradford Builders, 1101 Lincoln Rd. Bldg., Miami Beach. $310,396. Bids 5/4. CD 4/20.

Fla., Miami Beach—City, auditorium, to L. & H. Miller Co., 1421 18 St. $724,950. Bids 5/2. CD 5/9—ENR 5/12.

COMMERCIAL BUILDINGS

BIDS ASKED

May 17

Ind., Warren—Methodist Home, Warren, 2 story, 140x250 ft., brick, stone, rein.-con. steel Old Folks Home. $300,000. Plans deposit $25. Robert E. Stevens, 1033 Cherry St., Bluffton, archts. CD 4/11/47—ENR 5/1/47.

About May 20

Mo., Overland (St. Louis, Zone 14, P. O.)—All Souls Catholic Parish, Rev. Walter Tucker, pastor, brick, concrete, stone church, Hood and Tennyson Aves. Approx. $250,000. A. F. and Arthur Stauder, 3608 S. Grand Blvd., St. Louis, Zone 18, archts.

May 26

●Ont., London—J. M. Watt & P. F. Tillman, archts., 343 Richmond St., 6 story, 44x250 ft., rein.-con. brick main bldg. addn. Hospital for Chronically Ill, Richmond St., for Sisters of St. Joseph, Sacred Heart Convent. Approx. $1,200,000. CD 10/21—ENR 11/11.

May 28

La., Lake Charles—Dunn & Quinn, archts., Lake Charles, 4 story Mullers Dpt. Store addn., for Mullers Department Store, Adolph Marks, pres., Lake Charles. CD 8/17—ENR 8/28.

May 31

La., Lafayette—Cathedral High School, Rt. Rev. Msgr. Isenberg, pastor, Lafayette, 1 story, 160x222 ft., concrete, brick school and gymnasium bldg. Plans deposit $20. Favrot & Reed, Nola Bldg., New Orleans, archts.

June 1

●Ala., Montgomery—St. Jude's Catholic Hospital, c/o Joseph C. Maschi, archt., 9 Montview Court, hospital. $1,300,000. CD 5/2.

June 8

La., New Orleans—R. S. Soule & Leon Dufrechou, 1310 Esplanade Ave., 7 story, 81x92 ft., rein.-con., steel, apartment, 3103 St. Charles Ave., for N. V. Leveau, 3225 Ursuline Ave. CD 12/2—ENR 12/16.

LOW BIDDERS

Calif., Patterson — Patterson Community Hospital, S. 8 St., rejected bids Apr. 11, 25 bed frame hospital. L. B. $407,000. CD 4/19—ENR 4/21, under LB.

Tex., Houston—Congregation Beth Israel, 1415 Holman St., Apr. 25, masonry synagogue addn., alterations, remodeling, incl. tower, from Fisher Constr. Co., 4711 Greeley St., $351,773. Est. $250,000. CD 4/19—ENR 4/21.

CONTRACTS AWARDED

Ala., Childersburg—Pine Wood Terrace, Inc., c/o contractor, 106 homes, to F. R. Daugette, 1500 Woodland Ave. S. W., Birmingham. Approx. $500,000.

●Calif., Long Beach—L. S. Whaley Co., 4439 Atlantic Ave., 22 two frame, stucco apartment housing. Owner builds. $1,500,000. Hugh Gibbs, 441 E. 1 St., Long Beach, archt.

Calif., Oxnard—J. Kouser, Oxnard, 77 frame, stucco dwellings, to E. A. Kaiser, 8825 Olympic Blvd., Los Angeles. Approx. $500,000. J. R. Friend, 556 W. 5 St., San Pedro, archt.

●N. Y., East Hempstead—N. K. Winston Assoc., 22 W. 48 St., New York, Zone 19, 200 one-family houses on 6 acre tract, Front and Sixth Sts. Owner builds. $2,400,000. Matern & York, 90-04 161 St., Jamaica, archts.

Proposal Advertisements see pp. 169 to 173, 188 & 191
Proposed Projects see p. 128

OFFICIAL PROPOSALS

Bids: May 19, 1949 (995)

Barges & Towing Service

SEALED PROPOSALS

Notice is hereby given that sealed proposals for furnishing, maintaining and operating one or more barges and towing service for the transportation of sewage sludge from a private wharf on Arthur Kill, in the City of Elizabeth, New Jersey, to a point at sea for a period of one, two, three, four or five years, will be received by the Joint Meeting for certain muncipalities in Essex and Union counties, New Jersey.

Said proposals will be received in the Council Chamber, City Hall, East Orange, New Jersey at 4:00 p.m. Eastern Daylight Savings Time, on Thursday, May 19, 1949, at which time they will be publicly opened and read. Information concerning this work, blank forms of questionnaires, specifications, and proposals forms may be obtained from the office of the secretary of Joint Meeting, room 311, City Hall, Newark, New Jersey.

The Joint Meeting reserves the right to reject any or all proposals and also reserves the right to waive any informality in the bid and to accept the bid which, in its judgment, best serves the interest of the contracting muncipalities.

By order of the Joint Meeting,
G. Harry Cullis, Chairman
Edward P. Decher
Secretary

Bids: June 1, 1949 (123)

Electric Traveling Cranes

CONTRACT 397

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A. M., Eastern Standard Time, on Wednesday, June 1, 1949, for Contract 397, for furnishing, testing and delivering one 5-ton and three 3-ton electric traveling cranes and appurtenances for the Rondout, West Branch and Kensico South effluent chambers of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of one thousand five hundred dollars ($1,500.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. HUTH, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: June 1, 1949 (905)

Barge Canal Improvment

NOTICE TO BIDDERS

Sealed proposals in duplicate covering construction of
Contract—Guard Gates, Spillway and per-U. S. 37 forming other miscellaneous work at Herkimer (Mohawk) Herkimer County, N. Y.
Contract—Guard Gates and performing U. S. 64 other miscellaneous work at Little Falls, Herkimer County, N. Y.

will be received by Henry A. Cohen, Director, Bureau of Contracts and Accounts, Department of Public Works, The Governor Alfred E. Smith State Office Building, Albany, N. Y., on behalf of the Department of Public Works until 10:30 o'clock A. M. (Advanced Standard Time which is 9:30-o'clock A. M. Eastern Standard Time.) on Wednesday, June 1, 1949, when they will be publicly opened and read.

Each proposal must be made upon the form and submitted in the envelope provided therefor and shall be accompanied by a certified check made payable to the State of New York, Commissioner of Taxation and Finance, of 5% of the amount of the bid as a guaranty that the bidder will enter into the contract if it be awarded to him. The title of the work must be written on the front of the envelope, sealed and delivered to Henry A. Cohen, Director, Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Building, Albany, N. Y. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alterations or additions may be rejected as informal. Successful bidder will be required to give a bond conditioned for the faithful performance of the contract and a separate bond for the payment of laborers and material men. Corporations submitting proposals shall be authorized to do business in the State of New York. Drawings and specifications may be examined free of charge at the following offices:

Guy W. Pinck, Deputy Chief Engineer, The Governor Alfred E. Smith State Office Building, Albany, N. Y.
State Architect, 18th Floor, 270 Broadway, New York City.
Lacy Ketchum, District Engineer, 109 N. Genesee St., Utica (1) N. Y.
Wm. Robinson, District Engineer, 301 E. Water St., Syracuse (1) N. Y.
A. R. Mulligan, District Engineer, Barge Canal Terminal, Rochester (1) N. Y.
Charles H. Waters, District Engineer, 65 Court St., Buffalo (2) N. Y.

Drawings and specifications may be obtained from the Director, Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Building, Albany, New York, upon deposit of $10.00 for each set.

Refund in full will be made to bidders for one set of plans and specifications returned in good condition within 30 days of award of contract or the rejection of the bids. A 50% reimbursement will be made for the return in good condition, of all other sets of the plans and specifications within 30 days following the award of the contract or the rejection of the bids.

Checks for plans and specifications shall be made payable to the State of New York.

Proposal blanks and envelopes will be furnished without charge.

B. D. TALLAMY, Superintendent
N. Y. State Department of Public Works

Bids: May 26, 1949 (133)

Switch House Gear and Wiring for Runways A, B, C, and V

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-42

Sealed proposals for furnishing and installing Switch House Gear and Wiring for Runways A, B, C, and V at New York International Airport will be received in the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 o'clock on the afternoon of Thursday, May 26, 1949, and thereafter in the Auditorium of the Authority at the same address until 3:00 P.M., on the same date at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman,
Chairman

New York, May 12, 1949.

(Continued on page 170)

CONTRACTORS
Watch this Section
for New Projects
Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS
(Continued from page 169)

Bids: June 20, 1949 (134)

Water Works System

WOODSTOCK WATER DISTRICT
WOODSTOCK, ULSTER COUNTY
NEW YORK

Sealed proposals for furnishing materials and equipment and constructing a water works system for Woodstock Water District, Woodstock, Ulster County, New York, will be received by the Town Board of the Town of Woodstock, New York at the office of the Town Board, in the Town Hall, Woodstock, Ulster County, New York, until 3:00 P.M. Eastern Daylight Saving Time on the 20th day of June, 1949, and will then be publicly opened and read aloud.

The work will consist essentially of 6 inch and 8 inch water mains, equipped with valves and hydrants, together with two driven wells with screens, pumps, motors and automatic control equipment, one pumping station building and a 100,000 gallon steel standpipe.

The work will be divided into three sections as follows:

Section I—Wells, Pumping Equipment, Pumping Station Building and Controls
Section II—Water Main, Valves, Hydrants and Appurtenances
Section III—Standpipe

Each proposal must be accompanied by a certified check, payable to the Town Board of the Town of Woodstock, New York, in an amount equal to five percent (5%) of the bid, as a guarantee that the contract will be entered into if awarded. A bond satisfactory to the Town Board for the full contract price will be required. Payments will be made on monthly estimates.

Plans, Specifications, Contract Forms, and approximate quantities are on file at the Office of Keis & Holroyd, Consulting Engineers, Troy, New York and at the office of the Town Clerk, Town Hall, Woodstock, New York.

Bidders may obtain copies from the Engineer by enclosing check for Twenty-five Dollars ($25.00) payable to the Engineers, this sum will be returned to bidders in full and to non-bidders who return the plans and specifications in good order, twenty dollars ($20.00) will be repaid. The Town Board reserves the right to reject any or all bids.

Town Board, Town of Woodstock, New York
By GRANT B. ELWYN
Town Clerk

KEIS & HOLROYD
CONSULTING ENGINEERS
TROY, NEW YORK
Dated: May 4, 1949

Bids: May 26, 1949 (124)

Railroad Underpass

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

READING RAILROAD UNDERPASS AT PARKWAY AVE.

Construction of Underpass of Reading Railroad at Parkway Avenue, Ewing Township, Mercer County, Federal Aid Secondary Project No. S-93 (1).

Estimated:

2,576 cu. yds. Bridge Excavation
104M. B. M. ft. Timber for Bents
12,000 lbs. Sterling & Fittings for temporary structure
2,300 cu. yds. Detour Track Embankment
578 cu. yds. Class "B", "C" & "D" Concrete
131,586 lbs. Structural Steel
2,800 lbs. Reinforcement Steel
1,200 cu. yds. Roadway Excavation
1,049 sq. yds. Removal Existing Conc. Pavement
2,055 sq. yds. 9" Rein. Concrete Pavement
1,627 lin. ft. Concrete Curb
328 lin. ft. Drainage
8 units Inlets

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 26, 1949, at ten o'clock (10:00 A. M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A. M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and Supplements and Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Federal Works Agency, Public Roads Administration, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6-12 North Willow Street, Trenton, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be 75¢ per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: May 31, 1949 (135)

Water Works System

NOTICE TO CONTRACTORS
EXTENSION NO. 3 TO
ROTTERDAM WATER DISTRICT NO. 1,
ROTTERDAM, NEW YORK

Sealed bids for the construction of a water works system will be received by the Board of Water Commissioners in the Assembly Hall on the top floor of the Town Hall on Vinewood Avenue in the Town of Rotterdam, Schenectady County, New York, until 8:00 P.M., Eastern Daylight Saving Time, May 31, 1949, and then at said rooms publicly opened and read aloud.

The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Town Clerk in the Town Hall on Vinewood Avenue, Town of Rotterdam, New York and at the office of Keis & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the said office of Keis & Holroyd upon payment of $25.00 for each set. Any bidder upon returning such set in good condition, will be refunded his payment and any non-bidder upon so returning such set promptly will be refunded $20.00.

The Board of Water Commissioners, Rotterdam Water District No. 1, Rotterdam, New York reserves the right to waive any informalities in, or to reject, any or all bids.

A certified check made payable to the order of the Board of Water Commissioners of Rotterdam Water District No. 1, Rotterdam, New York, in the amount of five per centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful Bidder will be required to furnish a performance bond satisfactory to the Board of Water Commissioners of Rotterdam Water District No. 1, Rotterdam, New York in the amount of the contract and having as surety thereon such surety company or companies as are acceptable to the Board of Water Commissioners of Rotterdam Water District No. 1, Rotterdam, New York.

No bidder may withdraw his bid within 45 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for opening of bids or authorized postponement thereof.

WILLIAM ELLERS
Secretary

Dated: May 2, 1949
KEIS & HOLROYD
CONSULTING ENGINEERS
TROY, NEW YORK

Bids: June 16, 1949 (136)

Railroad Connection

"Construction of railroad connection notice of intention to invite bids Invitation No. B-53.

General Electric Co., Nucleonics Department, Hanford Works, Richland, Washington, announces that pursuant to authority established under its contract with the United States Atomic Energy Commission, invitations to bid on the construction of a railroad connection from a point approximately 5 miles west of Kennewick, Washington, on the Yakima branch of the Union Pacific Railway to Hanford works. The connection includes 3 bridges with approach trestles, 7½ miles of mainline railroad track and sidings, 3¾ miles of classification yard track, rehabilitation of 3,070 track feet of existing track, removal of 2.1 miles of existing track and placing of 500,000-cubic yards of compacted fill, and construction of appurtenant facilities. All rail, track accessories, cross ties (except bridge ties) and plate girder and lattice truss spans for one bridge (in knocked down condition at Pocatello, Idaho) and requiring some refabrication will be furnished by the General Electric Company. Bid documents will be issued on or about May 16, 1949, and sealed bids will be received on or about June 16, 1949, at Richland, Washington, and then publicly opened and read. Invitation will show exact date of opening. Plans and specifications will be available in sufficient quantity to be furnished only to contractors interested in bidding the entire work for which a deposit of $50.00 per set (postal money order or cashier's check) will be required, made payable to General Electric Company, Hanford works a refund will be made in full to bidders for return of sets in good condition. Address request for bid documents, plans and specifications to General Electric Company, care Mr. A. G. Cervi, contract supervisor, building 101, North Richland, Washington. A certified check in the penalty amount of $25,000.00 will be required with each bid received, and each bidder must certify that he is able to furnish performance and payment bonds, executed by a corporated surety. Performance and payment bonds in amounts to be stated in the formal invitation will be required.

R. E. DAEON,
General Electric Co.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2655) will be received by Bureau of Reclamation, Yakima, Washington, June 1, 1949, and then publicly opened for furnishing labor and materials and performing all work for spillway alteration to Keechelus Dam, Yakima Project, Storage Division, Washington. The work is situated on Yakima River about 6 miles southeast of Hyak, Washington. Principal items are approximately: 10,000 cu. yds. of excavation; 2,500 cu. yds. of concrete; 135,000 lbs. of reinforcing steel; 80,000 lbs. steel for radial gate hoist; and miscellaneous metalwork. Time allowed for completion will be 320 days. For particulars, address Bureau of Reclamation, Yakima, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (137)

(Continued on page 171)

"Opportunity" Advertising:
Think
"SEARCHLIGHT"
First

OFFICIAL PROPOSALS
(Continued from page 170)

Bids: May 26, 1949 (127)

State Road Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 25, SECTION 9B

Construction of Route 25, Section 9B, Moorestown-Riverton Road Intersection, Pavement Widening, in Cinnaminson Township, Burlington County.

Estimated:
- 110 c.y. Roadway Excavation, Earth
- 328 s.y. 3" Modified Penetration Macadam on 4" Macadam Base Course
- 22 tons Pavement Type A or T
- 220 l.f. White Concrete Curb

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 26, 1949, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner.

Bids: May 26, 1949 (128)

Road Work & Bridge Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON
READVERTISEMENT

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 56, SECTION 2

For the widening of Route 56, Section 2, Absecon Boulevard from Chelsea Avenue to South Carolina Avenue, City of Atlantic City, Atlantic County. Length 0.943 miles.

ROAD WORK

Estimated:
- 7,200 cu. yds. Roadway Excavation—Earth
- 19,000 sq. yds. 8" Gravel Base Course
- 16,500 sq. yds. 3" Mod. Pen. Mac. Inter. Course
- 2,300 tons Pavement, Type FA-BC-1

BRIDGE WORK

- 130 cu. yds. Concrete in Structures
- 17,500 lbs. Rein. Steel in Structures
- 46,000 lbs. Structural Steel
- 2,160 lin. ft. Treated Timber Piling
- 22M. B. M. Treated Timber

(NOTE: Bids will be received for the above Road Work and Bridge Work separately and/or for the entire Road Work and Bridge Work as one contract)

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 26, 1949, at ten o'clock (10:00 A. M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A. M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller Jr.
State Highway Commissioner

Bids: May 26, 1949 (129)

Repairing Bridge

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 49, REPAIRING MAURICE RIVER BRIDGE

For repairing the Maurice River Bridge on Route 49 in Millville, Cumberland County. The bridge comprises a swing span and the work involved consists of the replacement of existing stringers, installation of open grid steel flooring, new timber fender system, steel sheet pile bulkhead and incidental items. Practically all connections are to be made by electric welding. The principal items of construction are—

Estimated:
- 56,000 lbs. Structural Steel (new)
- 16,000 lbs. Structural Steel (reused)
- 4,050 sq. ft. Steel Grid Flooring
- 4,095 lin. ft. Treated Piles
- 14M. B. M. Treated Timber
- 1,250 sq. ft. Steel Sheet Piling

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 26, 1949, at ten o'clock (10:00 A. M. — EASTERN STANDARD TIME), eleven o'clock (11:00 A. M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: May 26, 1949 (130)

State Road Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highgway Commissioner for:

PARK AVENUE

Construction of Park Avenue from Oak Tree Lane to Union-Middlesex County Line, Borough of South Plainfield, Middlesex County.

Federal Aid Secondary Project No. FAS-S113(1). Length 1.713 miles.

Estimated:
- 5,090 cu. yds. Roadway Excavation
- 16,215 sq. yds. Macadam Base (5" thick)
- 34,946 sq. yds. Mod. Pen. Macadam (2" thick)
- 55,914 gals. Bituminous Material, Tar or Asphalt
- 34,946 sq. yds. FA-BC-1 (1½" thick)
- 18,731 sq. yds. Scarifying and Grading
- 5,265 lin. ft. Concrete Curb
- 2,900 sq. yds. Concrete Sidewalk, 4' thick
- 2,288 lin. ft. Drainage

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 26, 1949, at ten o'clock (10:00 A. M. — EASTERN STANDARD TIME), eleven o'clock (11:00 A. M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and Supplements and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Federal Works Agency, Public Roads Administration, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 6 Somerset Street, Plainfield, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grades of labor employed on this contract shall be 75¢ per hour. The minimum wage paid all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

(Continued on page 172)

OFFICIAL PROPOSALS
(Continued from page 171)

Bids: May 25, 1949 (119)

State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Chapter 63 Laws of 1936, as amended, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, May 25, 1949 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 333 Broadway, Albany, N. Y.				
Rensselaer & Saratoga	CHAP. 236 LAWS 1946	Bridge Across the Hudson River, Mechanicville & Town of Schaghticoke	0.22	240' Thru Truss & Plate Girder Apps. Conc. 8" Thk., 24' Wdt.	$26,000 Plans $5.00	$446,764.20
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., 301 E. Water St., Syracuse, N. Y.				
Onondaga	RC 49-53	Baldwinsville Vill.: Downer, S. H. 1634 Syracuse and Oswego Sts., Fulton-Baldwinsville, Pt. 3, S. H. 9083	3.18	Conc. Fdt. (Widening)	$6,000 Plans $5.00	$104,000.00
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	FA-C 49-2	City of Batavia: Main Street Proj. U706(2)	0.77	Asph. Conc. Type 2A	$25,000 Plans $5.00	$423,000.00
Monroe	E 172	Manitou Road, E172	0.37	Alpha $60.27 Cant. Deck 2 at 84' 2 Anchor Spans at 44' ea. Suspended Span 100'	$30,000 Plans $10.00	$539,542.50
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court St., Buffalo, N. Y.				
Chautauqua	PSC 9209	Elim. of Grade Crossing of South Work Street with Erie R. R.: Vill. of Falconer	0.36	Alpha $230.00 lbs. 4 Spans 88' 9", 70', 68' 7", 59' 4" Asph. Conc. Opt.	$21,000 Plans $5.00	$368,000.00
Erie	PSC 4234 8253	Elim. of Grade Crossing of N. Y. C. R. R. & Penn. R. R. with Ridge Road	0.88	Alpha $371.00 lbs. 3 at 60' 3"; 2 at 51' 6". Asph. Conc. Opt.	$30,000 Plans $5.00	$507,000.00
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y.				
Westchester	RC 49-54	Pines Bridge-Whitehall Corn., S. H. 9024	4.78	12,850 L. Ft. Opt. Guard Railing	$1,600 Plans $5.00	$30,000.00
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Broome	FAS SH 49-9	Union Center-Newark Valley, Pt. 1, Proj. S338(1)	3.03	Asph. Conc. Opt.	$25,000 Plans $5.00	$423,000.00
Sullivan	FA SS 49-16	Fosterdale-Falls Mill Proj. S275(1)	1.43	Alpha $32.97 I-Beam 92' Grd. Grav. Bit. Mulch.	$14,000 Plans $5.00	$255,000.00
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Hwy at Little E. Neck Rd., Babylon, L. I., N. Y.				
Bronx	N. E. T. 49-1	New England Thruway Cont. 2A	0.52	Grading & Drainage	$43,000 Plans $5.00	$725,000.00
Nassau	RC 49-55	Conduit Blvd., Pt. 3, S. H. 1699A	0.04	Misc. Drainage and Structure	$2,000 Plans $5.00	$35,000.00

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: May 26, 1949 (126)

State Road Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 44, SECTION 13C

Construction of Route 43, Section 13C from McKinley Avenue (King's Cabins) to Bremen Avenue, Pavement Resurfacing, Galloway Township, Atlantic County. Estimated:

45,000 s.y. Scarifying and Reshaping Existing Shoulders
22,500 tons Pavement Type MA-BC-2
4,000 c.y. Road Gravel

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 26, 1949, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner.

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2661) will be received by Bureau of Reclamation, Denver, Colorado, May 27, 1949, and then publicly opened for furnishing labor and materials and performing all work for the installing of embedded parts for hydraulic turbines and completing crane installations, Estes Power Plant and Marys Lake Power Plant, Colorado-Big Thompson Project, Colorado. The work is situated within 4.5 miles of Estes Park, Colorado. Principal items are approximately: installing embedded parts for three 21,000-hp hydraulic turbines with pressure regulators; installing embedded parts for one 11,300-hp hydraulic turbine with pressure regulator; and other work. Time allowed for completion will be 160 days. For particulars, address Bureau of Reclamation, Region 7, New Customhouse, Denver, Colorado; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.
(131)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. R1-43) will be received by Bureau of Reclamation, Yakima, Washington, until 10 a.m., Pacific Standard Time, June 2, 1949, and then publicly opened for furnishing labor and materials and performing all work for rehabilitation of Tieton Dam and spillway, Yakima Project, Washington. Principal items are approximately: 14,000 cu. yd. excavation; 3800 cu. yd. concrete; 8000 cwt. pneumatically applied mortar; and other work. Time allowed for completion will be 150 days. For particulars, address the Bureau of Reclamation: P. O. Box 1377, Yakima, Washington; P. O. Box 937, Boise, Idaho; Bldg. 1a, Denver Federal Center, Denver, Colorado; or Washington 25, D. C.

MICHAEL W. STRAUS, Commissioner.
(117)

Public Roads Administration, Federal Works Agency, April 28, 1949. SEALED BIDS will be received at the office of the Public Roads Administration, Concord Electric Building, 9-15 Capitol St., Concord, New Hampshire, until 10:00 a.m., E.S.T., May 27, 1949, for New Hampshire Forest Highway Project No. 8-D, Grafton County, New Hampshire. Length—4.208 miles. The approximate quantities of the more important items are as follows: 142,770 cu. yd. Excavation, 410 cu. yd. Cement Concrete, 14,000 cu. yd. Gravel and 6,495 lin. ft. Sheet Metal Pipe. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or certified check made payable to the Treasurer of the United States will be required to insure their return within 15 days after the opening of bids. Plans, specifications, and proposal forms may be obtained from the offices of the Public Roads Administration, Concord Electric Bldg., 9-15 Capitol St., Concord, New Hampshire, or c/o Acadia National Park Office, Bar Harbor, Maine, or 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.
(122)

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota. Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Construction of Stage No. 2, Spillway and Embankment Closure, Home Dam, Park River, North Dakota, will be received in this office until 11:00 A.M., C.S.T., 17 May 1949, and then publicly opened. Further information upon application.
(998)

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS, Foot of Prytania Street, New Orleans, La.—Sealed bids will be received in this office until 11:00 a.m., CST, 9 June 1949, and then opened for the construction of the terrace section of Texarkana Dam, Bowie County, Texas, in the New Orleans District. Principal quantities involved are approximately 2,500,000 cubic yards of compacted fill, 137,000 cubic yards of dumped riprap, 55,000 cubic yards of filter gravel, the construction of 2 miles of road and a slope drainage system. Further information on application.
(111)

(Continued on page 173)

READ THE OFFICIAL PROPOSAL COLUMNS OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS
(Continued from page 172)

Bids: June 9, 1949 (120)

Sewage Treatment Plant and Appurtenances

TOWN OF PLAINVILLE, CONNECTICUT
NOTICE TO CONTRACTORS

Bids will be received by the Town of Plainville on June 9, 1949, at 3:30 P. M., Eastern Daylight Saving Time, for the construction of a Sewage Treatment Plant and Appurtenances consisting of:—
Contract II—Sewage Treatment Plant
Contract IV—Fence
Information, plans and specifications may be obtained at the offices of Bowe, Albertson & Associates, Engineers, 110 William Street, New York City, New York, and at the office of the Board of Selectmen, Town Hall, 29 Pierce Street, Plainville, Connecticut, between the hours of 10 A. M. and 4 P. M. daily except Saturdays, Sundays and holidays.
THE BOARD OF SELECTMEN OF THE TOWN OF PLAINVILLE, CONNECTICUT
By: RONALD W. HYATT
First Selectman
DATED, April 16, 1949

Bids: June 1, 1949 (121)

Free Library

Saratoga Springs Free Library, Inc. (Owner)
Sealed bids for General Construction and Mechanical Work for the
Saratoga Springs Free Library
will be received by The Trustees of the Saratoga Springs Free Library, Inc., at 590 Broadway, Saratoga Springs, N. Y. until 2 P. M. June 1, 1949, and then at said place publicly opened and read aloud.
The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Forms of Bid Bond and Performance Bond may be examined at the office of Percy W. Dake, Excelsior Avenue, Saratoga Springs, N. Y., Telephone 820, and copies thereof obtained upon payment of $10.00 for each set. Any bidder, upon returning such set promptly and in good condition, will be refunded his payment.
Each bidder must deposit with his bid security in either cash, certified check or bid bond in an amount of not less than five percentum (5%) of the base bid.
No bidder may withdraw his bid within 30 days after the actual date of the opening thereof.
H. D. Hunt, M.D.
President, Trustees of the
Saratoga Springs Free Public Library, Inc.
April 29, 1949

Bids: May 23, 1949 (118)

Water Supply Intake

Wyandotte, Michigan

Sealed proposals for construction of an intake 42 inches in diameter, approximately 1700 feet in length in trench across the Western channel of the Detroit River, will be received by the Department of Municipal Service of the City of Wyandotte, Michigan at the office of the Department, 2555 Van Alstyne Blvd. at two o'clock E.S.T. May 23, 1949 at which time and place the bids will be publicly opened and read. No bid may be withdrawn after the scheduled closing time for at least thirty days.
Contract documents including necessary plans may be procured from the office of Department of Municipal Service or the office of the Engineers, or may be examined at the office of either of the above.
A deposit of $10.00 will be required for contract documents and plans, $10.00 will be refunded to bidders on return of the documents in good condition within twenty days. $5.00 will be returned to non-bidders on return of the documents in good condition within twenty days. Bids may be rejected unless made on forms furnished with the contract documents.
A certified check acceptable to the owner in the amount of 5% of bid made payable to the Treasurer of City of Wyandotte, must accompany each proposal. The deposit of the successful bidder shall be forfeited if he fails to execute the contract and bonds within ten days after the award. The Department of Municipal Service reserves the right to reject any or all bids, waive informalities or accept any bid it may deem best.
Henry Girardin
Secretary
Pate & Hirn, Engineers
532 Michigan Building
Detroit 26, Michigan

(Continued on page 188)

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

WANTED: BY Missouri State Highway Department, Jefferson City, Missouri, several experienced detailers and designers on reinforced concrete and steel bridges. Permanent position. Salary range up to $400 per month. Give complete details of education and experience.

WANTED: A Registered Professional Engineer, capable of handling Borough Management including highways, storm and sanitary sewer drainage, building construction and miscellaneous administrative duties. Must be of good character, able to assume responsibility and must devote full time. Will work with Borough Officials of fast growing community. Excellent opportunity for the right man. Start immediately. Submit reference, training, experience, age and salary expected. Address all communications to: Howard A. Achenbach, Secretary, Borough of Camp Hill, 2219 Yale Avenue, Camp Hill, Penna.

POSITIONS VACANT

WANTED—ENGINEERS, Architects, Draftsmen experienced in the design of sewers, sewage treatment plants, water treatment plants and industrial buildings. Also engineers to supervise construction. State qualifications, experience, salary requirements and date available. P-1155, Engineering News-Record.

WANTED: EXPERIENCED estimators, by large, established general contractor for work in New Mexico. Please write Engineering News-Record, P-8690, giving in detail, education, age, experience and family status. P-8690, Engineering News-Record.

WANTED: ESTIMATOR for heating, plumbing, air-conditioning contractor located in Central Pennsylvania. State age, qualifications, experience and salary expected in first letter. P-8759, Engineering News-Record.

STRUCTURAL ENGINEER about 35-40, thoroughly experienced in reinforced concrete design. Willing to travel. Headquarters Kansas City. P-8755, Engineering News-Record.

CHECKER-DETAILERS for Structural and misc. shop drawings. Permanent position. Hospitalization, health and accident insurance available. Vacations and holidays with pay. State education, experience, age, salary desired and when available. The J. T. Edwards Company, 1241 McKinley Avenue, Columbus 8, Ohio.

ESTIMATOR FOR Building Construction projects running over $5,000,000.00. Must be experienced, quick and accurate in taking off quantities for excav., concrete, forms, masonry, etc. Write Fleisher Eng. and Constr. Co., P. O. Box 63, Kensington Station, Buffalo, N. Y.

WANTED — MECHANICAL Engineers and draftsmen experienced on conveyors, rock crushers, asphalt plants, coal washer, etc. Mostly board work, design layout, and detailing. Write fully giving experience, education, personal history and salary required. Iowa Manufacturing Company, Cedar Rapids, Iowa.

(Continued on page 174)

WANTED
ESTIMATING AND CONSTRUCTION PLANT ENGINEER

Large, long-established West-coast construction company desires an engineer who has specialized in estimating, take-off, and cost work; and who has had a good background in crushing and mixing plant design and construction. Actual field experience on dams or other heavy projects is desirable. This is a permanent, responsible position. Please submit detailed personal and experience record, including references. Applications will be held in strict confidence. Salary open. Our employees know of this ad.

P-8880, Engineering News-Record
68 Post Street, San Francisco, Calif.

IMPORTANT ANNOUNCEMENT

To organizations with their own sales force in contact with firms in the Engineering Industry

A group of British Companies manufacturing detergents, polishes and cleaning preparations of importance to the engineering industry, have decided to place their United States selling arrangements in the hands of area sales distributors and/or non-competitive manufacturing organizations which already employ their own sales force and are desirous of widening their range.

The products are manufactured to the highest standards, and are well presented. The selected distributors will be given ample sales promotional support. The President of the Companies concerned is now in New York and organizations of standing are invited to communicate with him personally.

MR. J. LISS
C/o, KORLIS LTD., 258 Broadway, New York 7

LUMBER SALESMAN

with good following among large general contractors, wanted by well established lumber yard. Capable producing volume business. Write stating age, and experience to

SW-8850, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

MAN WANTED
SALES ENGINEER

For selling and promoting asphalt construction and materials. Permanent position and excellent opportunity for right man. State qualifications and references.

SW-8369, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

Wanted
LAYOUT MAN
(Instrument Man)

By large contractor operating in middle-western states. Permanent position. Must be highest grade man who is a college graduate and has several years' field experience laying out abutments, sewers, dams, flood control structures, etc. High starting salary and unusual opportunity for suitable man as several of our executives worked up from instrument men. State age, education, experience, present salary and references who will not be contacted without your consent.

P8868, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED
For Large Costruction Project

Northern Chile, 9200', Equable Climate
Eighteen Months Contract—Proven Experience
Ability to Speak Spanish Desirable

COST & FIELD ENGINEERS
DIESEL MECHANIC SPECIALISTS
ELECTRICIANS (HY. EQUIPMENT & GEN. CONST. OPERATIONS)
ACCOUNTANTS
STENOGRAPHERS — MALE BILINGUAL
EARTH & ROCK SUPERINTENDENTS
SAFETY ENGINEERS
WAREHOUSE SUPERINTENDENTS
MECHANICAL SUPERINTENDENTS
PLUMBING SUPERINTENDENTS
OPERATORS

P-8892, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

PARTY CHIEFS—SURVEYORS

Excellent opportunities for immediate permanent employment with a progressive organization. Experience essential in field surveys for highway location and design, and on surveys for water and sewage treatment facilities.

Desirable working conditions at salary commensurate with ability. Write for application blank. All replies will be held confidential and will be promptly acknowledged.

CAPITOL ENGINEERING CORPORATION
DILLSBURG, YORK COUNTY PENNSYLVANIA

WANTED

TRACING CLOTH SALESMAN

We have opening for well established middle-age man to sell Micro-Weave and Pel-X Tracing Cloths direct to Manufacturers and Industrials. Good salary and opportunity for the right man.

Address Jos. A. McCusker, 70 West 40th St., New York City

ESTIMATOR—Wanted

Growing concern, doing building, sewer, road, and general construction in Ohio. Experienced man preferred, permanent position. State qualifications, exp., age, former employer, reference, salary expected, first letter.

P-8853, Engineering News-Record, 520 N. Michigan Ave. Chicago 11, Ill.

WANTED

CONSTRUCTION SUPERINTENDENT

WITH REFINERY AND HEAVY CONSTRUCTION EXPERIENCE. LOCATION SOUTH NEW JERSEY AND EASTERN PENNSYLVANIA. STATE AGE, EXPERIENCE AND FULL PARTICULARS.

P-8582, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT

WANTED

Permanent position, good pay, for high class SOBER superintendent capable of taking complete charge of all types of plant mix ASPHALT JOBS, seal coat and stabilized base work. Character and experience references required. Give full particulars in first letter. Location in Iowa.

HARGRAVE CONSTRUCTION CO.
2424 Bever Ave., Cedar Rapids, Iowa
Phone 2-5936

STRUCTURAL ENGINEER—DESIGNER

Experienced highway and railroad overpass, viaducts, industrial structures.

Write fully Mr. McDONALD
P. O. Box 2192 Atlanta 1, Ga.

WANTED

JUNIOR APPRAISAL ENGINEER

To assist Insurance Department of independent oil company set up equipment records and establish insurable values for oil production, refining, transportation and marketing properties. Applicants should have an engineering degree and at least one year's practical appraisal experience. Location—Middle West. Limited amount of traveling required. Good opportunity for continuous work and advancement.

P-8814, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

WANTED

New York Construction Corp. has vacancy for

SUPERINTENDENT

experienced in bridges, highways, sewers and various large heavy construction projects. State age and qualifications and salary expected. Also include photograph.

P-8816, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

GRADUATE CIVIL ENGINEER

with broad experience, a substantial portion of which has been in hydraulics. An excellent opportunity with a large public utility located in eastern Pennsylvania. Apply by letter stating education, experience and salary requirements. Address

P-8786, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

WANTED

New York Construction Corp. has vacancy for a CHIEF CIVIL ENGINEER, Graduate—Registered. Must have A-1 experience in take-off, pricing and estimating for large heavy construction projects. State age and qualifications and salary expected. Also include photograph.

P-8815, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

POSITIONS VACANT

(Continued from page 173)

ESTIMATOR, EXPERIENCED, by progressive fabricator in Southeast. Apply giving age, experience, references and salary required. P-8810, Engineering News-Record.

TEACHERS WANTED: Two instructors in Civil Engineering to start teaching September 1949. Subjects: Elementary Surveying, Advanced Surveying, Highways and allied subjects. Large Eastern Engineering College. P-8852, Engineering News-Record.

ESTIMATOR: EXPERIENCED quantity survey estimator and project manager wanted for permanent position in a growing organization. Give complete experience record and references. P-8894, Engineering News-Record.

PART TIME WORK

WANTED: SEMI-retired engineer for part time work taking off quantities. Beautiful rural location Northeastern U. S. Concrete experience especially desirable. PTW-8902, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL $3,000-$25,000. This confidential service established 1927, is geared to needs of high grade men who seek a change in connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

MASTER MECHANIC, service manager or shop foreman, age 42, experienced supervisor in the operation, repair and maintenance of heavy equipment, all phases of shop management, parts, etc., free to travel and can furnish the best of references. PW-8698, Engineering News-Record.

CONCRETE SUPERINTENDENT: 28 years in concrete field. Aggregate, batch and crushing plants. Producing 200 to 900 yds. daily. Thoroughly experienced in all phases of concrete. Foreign position preferred. PW-8964, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT: over 15 years experience in commercial, industrial and governmental work. Excellent references. PW-8317, Engineering News-Record.

STRUCTURAL DESIGN Engineer, Graduate C.E., Age 45, 23 years experience designing steel, concrete and timber structures, together with any type of foundation. Thoroughly competent to execute complete structural designs on any type building or waterfront structure, and supervise the execution of working drawings. Correspondence invited for position of responsibility. PW-7208, Engineering News-Record.

PROJECT MANAGER or General Superintendent over 20 years experience on heavy construction, industrial plants, power plants, filter plants, bridge substructures, foundations—capable of organizing and coordinating entire project. Available May 15th, minimum salary $8500 per annum. Location south or southwest—permanent connection with reliable contractor only considered. PW-8680, Engineering News-Record.

(Continued on page 175)

Attention Contractors

LIVE WIRE! Project Mgr. or Gen. Supt. Graduate Reg. Engineer. Have complete organization Ch. Engineer foreman etc. Dams, Bridges—Harbor Work — Power Plants — Tunnels — Refineries — Sewerage Disposal Plants — Public & Industrial Bldgs. Expert on Heavy Foundations—Mass Concrete. Understand plant layout & equipment. Labor relations. Closing out large project on the East coast. Willing to travel anywhere. States or South America. Resume of experience furnished as well as references. Age 41. Best of health.

PW-8821, Engineering News-Record
330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED
(Continued from page 174)

PROJECT MANAGER: General or Job Superintendent: 30 years experience; heavy and light construction; housing; apartments; schools; hospitals; office buildings; chemical; industrial plants; powerhouses; handle all trades including mechanical and allied work. PW-8779, Engineering News-Record.

SUPERINTENDENT, 36, experience includes commercial, industrial, housing, federal, also estimating and purchasing. Excellent references. Available May 15. PW-8807, Engineering News-Record.

STRUCTURAL ENGINEER, 31 MIT grad., exp. supervisor of drwg. & shop production from sketches thru contract. Concrete & steel. PW-8864, Engineering News-Record.

PROJECT MGR. or Gen. Supt. 24 years diversified construction experience. Complete plants (chemical, manufacturing, industrial, power & hydro-electric), commercial buildings, heavy foundation construction. A thorough administrator, capable of taking a project from preparation of bid to final payment both in field and office. An extensive knowledge of cost, estimating, purchasing, planning and scheduling jobs, expediting, securing sub-contracts and direct supervision of all trades. A capable organizer and "pusher". PW-8875, Engineering News-Record.

ESTIMATOR, STRUCTURAL Steel, ornamental and miscellaneous iron work. Thorough experience. Available at once. PW-8871, Engineering News-Record.

CIVIL ENGINEER; 34; married; registered; 10 years experience, design, construction, maintenance in industrial and process plants including buildings, docks, roads, utilities, mechanical equipment, machine tools. PW-8872, Engineering News-Record.

SUPT. ASPHALT Paving work General construction 25 years experience operate any type mix estimate cost and do work economically Chemical Engineer. Speak Spanish. PW-8859, Engineering News-Record.

SALES ENGINEER, with established contacts in Metropolitan New York and New Jersey area. Background of over 25 years in construction field. Complete knowledge of general contracting, both field and office. Capable of handling new business contacts, general supervision or complete office management. PW-8878, Engineering News-Record.

AMBITIOUS CHIEF Accountant experienced in corporate setups, finances and joint venture projects desires position with reputable engineering or construction firm. Twenty-five years experience large and small projects all types construction. Now employed but desire change. A-1 references and bond, latest cost methods used. PW-8888, Engineering News-Record.

CIVIL ENGINEER. Master's degree. Some experience in reinforced concrete building and bridge design and construction supervision. Single. PW-8889, Engineering News-Record.

CIVIL ENGINEER, age 39—15 years experience in the field and office on location and topographic surveys, highways, pipelines, heavy construction. Desire foreign position. PW-8904, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES TERRITORY Wanted. Energetic established manufacturer's representative wants Missouri and/or Middle West territory. Building, mining, road supplies, tools, equipment. Graduate mining engineer with fifteen years field and sales experience with following. RA-8797, Engineering News-Record.

SALES EXECUTIVE. Technical background and long experience all phases building industry. Qualified to plan promotion and manage sales of building products or engineering services. Eastern seaboard with New York headquarters only. SA-8903, Engineering News-Record.

PATENT ATTORNEY

Patent Practice

before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommel, Registered Patent Attorneys, Suite 454, 815-15th Street, N.W., Washington 5, D. C.

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BO-8863, Engineering News-Record
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Worthington 210 cubic foot, two-stage air-cooled, on steel wheels, Hercules diesel.
Chicago Pneumatic 210 cubic foot, two-stage, air-cooled, Caterpillar diesel on four rubber tired wheels.
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Lorain 40 Hi-Lift, 25' boom 19'8" stick LBS #5877, new ¾-yd dipper LBS#7750.
P&H 203A, LBS#2527, 19'6" boom 13' stick ¾-yd dipper.
Bucyrus-Erie 30B tunnel front 8' stick 1½-yd dipper LBS#3392.
Koehring 502 with necessary parts to convert from crane to shovel, 21' boom 16' stick 1¼-yd dipper.

BACKHOE ATTACHMENT

Lorain 41 backhoe, LBS#5429, with 18' boom, 7' stick, 36" cutting width Amsco bucket. Will fit any ¾-yd Lorain with serial number over 9,000.

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New Osgood ½-yd Model 200.

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27" outside width drop bottom type LBS #1033, good condition.
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Lorain 41, ¾-yd, LBS #7433, new condition.
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Heltzel 10'-12' finisher, rebuilt.
Blaw-Knox gas-electric 10½'-12½', rebuilt.
2 Koehring 10'-12', rebuilt.
Koehring 10'-16' finisher, rebuilt.

Concrete Spreaders

Blaw-Knox type SA 10'-15' spreader, new 1943. New condition.

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830'—Truscon 7"x8" forms, with stakes.
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Int. TD18 with Hail angledozer Trail Builder with D.D.P.C.U. New Nov. 1947.

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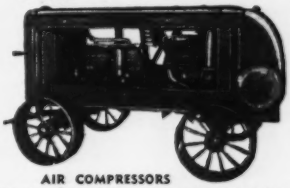

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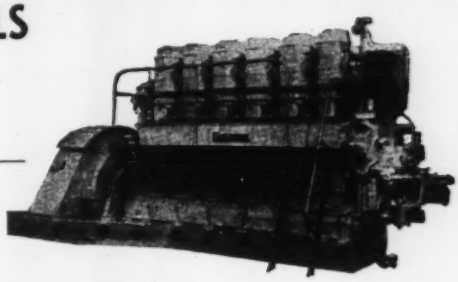

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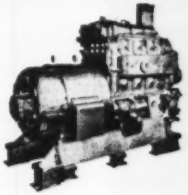

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30"	6	1/8" — 1/16"	18"	4	1/8" — 1/32"
30"	5	1/8" — 1/16"	16"	4	1/8" — 1/32"
26"	5	1/8" — 1/32"	14"	4	1/16" — 1/32"
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OFFICIAL PROPOSALS
(Continued from page 173)

Bids: May 31, 1949 (116)

Grade Crossing Elimination Work

THE NEW YORK CENTRAL RAILROAD COMPANY
466 LEXINGTON AVENUE
NEW YORK, N. Y.

NOTICE IS HEREBY GIVEN: Pursuant to the order of the Public Service Commission of the State of New York dated December 26, 1945, bids for

THE ELIMINATION OF GRADE CROSSINGS OF THE NEW YORK CENTRAL AND THE DELAWARE LACKAWANNA AND WESTERN RAILROADS, AND HIAWATHA BOULEVARD IN THE CITY OF SYRACUSE, ONONDAGA COUNTY, NEW YORK: will be received until 2:00 o'clock Daylight Saving time on May 31, 1949 by George A. Noren, Chief Engineer of The New York Central Railroad Company, Room 913, 466 Lexington Avenue, New York 17, N. Y., at which time and place they will be publicly opened and read.

Work consists of the construction of a four track railroad bridge to carry the tracks of New York Central and Delaware Lackawanna Railroads over Hiawatha Boulevard with related approach work, retaining walls, drainage, asphalt pavements with concrete base, etc., and including the construction, maintenance and removal of falsework to carry railroad tracks during the period of construction. Engineers estimate of contract work is $502,989.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the Chief Engineer of The New York Central Railroad Company, Room 908, 466 Lexington Avenue, New York City and may be seen at the office of The Syracuse Grade Crossing Commission at the City Hall in the City of Syracuse.

The deposit for plans, specifications and proposal forms for this contract is $10.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids.

Proposal for this project must be submitted in duplicate in a sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by a cash, draft or certified check payable to the order of The New York Central Railroad Company, for the sum of $30,000 as specified in the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions as outlined in the proposal.

The right is reserved to reject all bids.

G. A. Noren, Chief Engineer
The New York Central Railroad Company

Bids: May 21, 1949 (114)

Remodeling Sewage Treatment Plant

NOTICE TO BIDDERS

Sealed bids will be received until 12:00 o'clock noon EST MAY 21, A. D., 1949, in the office of the City Auditor-Clerk of Fort Lauderdale, Florida, for Section I of "Remodeling Sewage Treatment Plant" in the City of Fort Lauderdale, Florida.

Bidding blanks may be obtained from the office of the City Engineer. Plans and specifications for the project are on file in the office of the City Engineer.

A deposit of $25.00 for plans and specifications and of $15.00 each for additional copies of plans or specifications will be required. All deposits made for plans and specifications will be refunded upon their return in good condition within ten (10) days of the opening of bids.

A Certified Check for 5% of the total amount of the bid, made payable to the City of Fort Lauderdale shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the City of Fort Lauderdale as liquidated damages should the bidder fail or refuse to enter into a contract with the City of Fort Lauderdale for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The City of Fort Lauderdale reserves the right to reject any or all bids.

S. H. MARSHALL,
City Auditor-Clerk

(Continued on page 191)

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(Continued from page 188)

Bids: May 19, 1949 (113)

Water Treatment Plant

CONSTRUCTION OF IMPROVEMENTS AND ADDITIONS TO THE MUNICIPAL WATER TREATMENT PLANT FOR THE CITY OF EL PASO, TEXAS

NOTICE TO BIDDERS:

Sealed proposals, addressed to the Mayor and City Council of the City of El Paso, Texas, for the construction of additions and improvements to the municipal water treatment plant for the City of El Paso, Texas, will be received at the office of the City Clerk in the City Hall until 10:00 o'clock A. M., Mountain Standard Time, Thursday, May 19, 1949, and then publicly opened and read aloud.

A Certified Check issued by a bank satisfactory to the City, or a Bidder's Bond executed by some reliable corporate surety company authorized to do business in the State of Texas, in the amount of five percent (5%) of the largest possible lump sum bid submitted, payable without recourse to the City of El Paso, Texas, must accompany the Bidder's Proposal, as a guaranty that the Bidder will enter into a contract and execute the required performance bond and guaranty in the forms provided within ten (10) days after notice of award of contract to him. Bids or proposals without the required Bid Guaranty will not be considered.

Complete copies of the plans, specifications and contract documents may be examined at the office of Ashley G. Classen & Associates, Consulting Engineers, 504 N. Kansas St., El Paso, Texas, or may be obtained by prospective bidders upon a deposit of twenty dollars ($20.00). This deposit will be refunded to each actual bidder upon return of such documents in good condition within ten (10) days after receipt of bids.

Attention is directed to the fact that there must be paid on this project not less than the general prevailing rates of wages which have been established by the City. A schedule of such prevailing wages is contained in the specifications and contract documents covering the construction of the project. It shall be the Contractor's responsibility to inform himself thoroughly of all State, Federal and Local laws and statutes pertaining to the employment of labor and conditions of employment.

The Bidder's attention is directed to the fact that bids or proposals shall be submitted only on the forms provided therefor in the Contract Documents and must not be submitted in letter form or in any other form provided except by filling out in ink in both script and figures the proposal form provided in the specifications and contract documents which sets forth in detail the various items and approximate quantities thereof contained in the project and contract to be bid upon. Bids submitted in any other form will be considered irregular and will be returned to the Bidder unopened without receiving consideration by the Mayor and City Council.

The City of El Paso, Texas, reserves the right to accept or reject any or all proposals or bids, to waive technicalities, to make any investigation deemed necessary of a Bidder's ability to perform the work covered by the specifications, and to accept, what in the judgment of the Mayor and City Council, is the best bid.

THE CITY OF EL PASO, TEXAS
W. R. COLLINS
By: W. R. Collins, City Clerk.

Bids: May 26, 1949 (125)

State Road Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 6, SECTION 9

Construction of a crib wall of either concrete or metal units at Newark Water Division Gate House on Route 6, Section 9, in Little Falls Township, Passaic County. The principal items of construction are, Estimated:

For the Concrete Crib Wall
1,179 cu. ft. Concrete Cribbing
110 cu. yds. Stone Fill

For the Metal Crib Wall
1,347 sq. ft. Metal Crib Wall
165 cu. yds. Stone Fill

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, May 26, 1949, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in the name and address of the bidder and sealed special addressed envelopes bearing work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $5000.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
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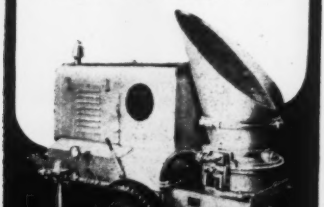

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YACHT BASIN APARTMENTS, CLEARWATER, FLA.
Archt. — Marsh & Saxelbye, Jacksonville, Fla.
Gen. Contr. — John C. Emerson & Sons, Brooksville, Fla.
Pozzolith Ready-Mixed Concrete furnished by General Ready-Mixed Concrete, Inc., Clearwater, Fla.

OTHER MASTER BUILDERS PRODUCTS IN WHICH CEMENT DISPERSION IS EMPLOYED

EMBECO...

For non-shrink grouting and re-integration.

MASTERPLATE...

Industry's toughest floor . . . "the iron that stays on top."

MASTERTEX...

Water-resisting cement-base paint which protects and decorates exterior and interior surfaces of concrete and masonry.

OMICRON MORTARPROOFING..

Controls shrinkage cracks; minimizes leaky brickwork, also re-tempering; contains stearate.

Concrete At Its Best-with POZZOLITH, Cement Dispersion

Consistent with the results that are being obtained with Pozzolith Concrete on job after job the country over, the owner of this 208 apartment unit project reports—"no cracks, no leaks, no honeycomb".

Exceptional performance is standard with Pozzolith, cement dispersion, which provides:

1. EASY PLACEABILITY
2. MINIMIZED SHRINKAGE
3. ASSURED STRENGTH
4. WATERTIGHTNESS
5. DURABILITY, CORROSION RESISTANCE

We suggest that you investigate Pozzolith for your next job, because with it, normal concrete of *any given quality is produced at lower cost than by any other means,* such as the addition of extra cement or of any other admixture either added at the mixer or interground.

Write for information and Pozzolith booklet.

the MASTER BUILDERS Co

CLEVELAND 3, OHIO — TORONTO, ONTARIO

When traffic called for heavy-duty paving--

--these four major cities lai

resilient, joint-free TEXAC

PHOTOGRAPHS

(1) Worcester, Mass. has paved many of its busiest thoroughfares with Texaco Asphaltic Concrete.

(2) A 23-year-old Texaco Sheet Asphalt pavement on Broad Street, Trenton, N. J.

(3) Wilmington, N. C. paved Front Street from beginning to end with Texaco Asphalt.

(4) A typical Texaco Asphalt pavement on the street system of Corpus Christi, Texas.

When your proposed pavement must withstand heavy, continuous traffic, follow the example of these four large cities. Under the severe traffic conditions found on the busy thoroughfares shown here, all four cities constructed Texaco Asphalt paving of the plant-mixed types. The Trenton, N. J. pavement, now more than 20 years old, has required a minimum of maintenance. Its present condition insures many additional years of satisfactory service.

Whether you require heavy-duty paving for a street, highway or airport runway, construct one of the plant-mixed types of Texaco Asphalt paving. Their long service and low upkeep mean a low annual cost to you.

For helpful information on the various plant-mixed types of asphalt construction suitable for streets, highways and airports, ask our nearest office for copy of the booklet, "Texaco Asphalt Paving—Plant-mixed Types."

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